

SILSBY

ROTARY

STEAM FIRE ENGINES

BUILT BY

SILSBY MANUFACTURING CO.,

ISLAND WORKS,

Seneca Falls, N. Y.,

U. S. A.

1877.

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SILSBY MANU'F'G CO.,

BUILDERS OF THE

SILSBY ROTARY

STEAM FIRE ENGINES,

HOLLY'S PATENT ROTARY PUMPS,

HOSE CARTS, HOSE & FIRE DEPARTMENT SUPPLIES,

ISLAND WORKS,

SENECA FALLS, N. Y.

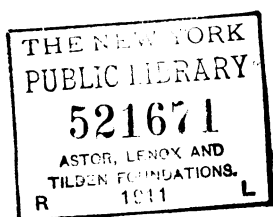
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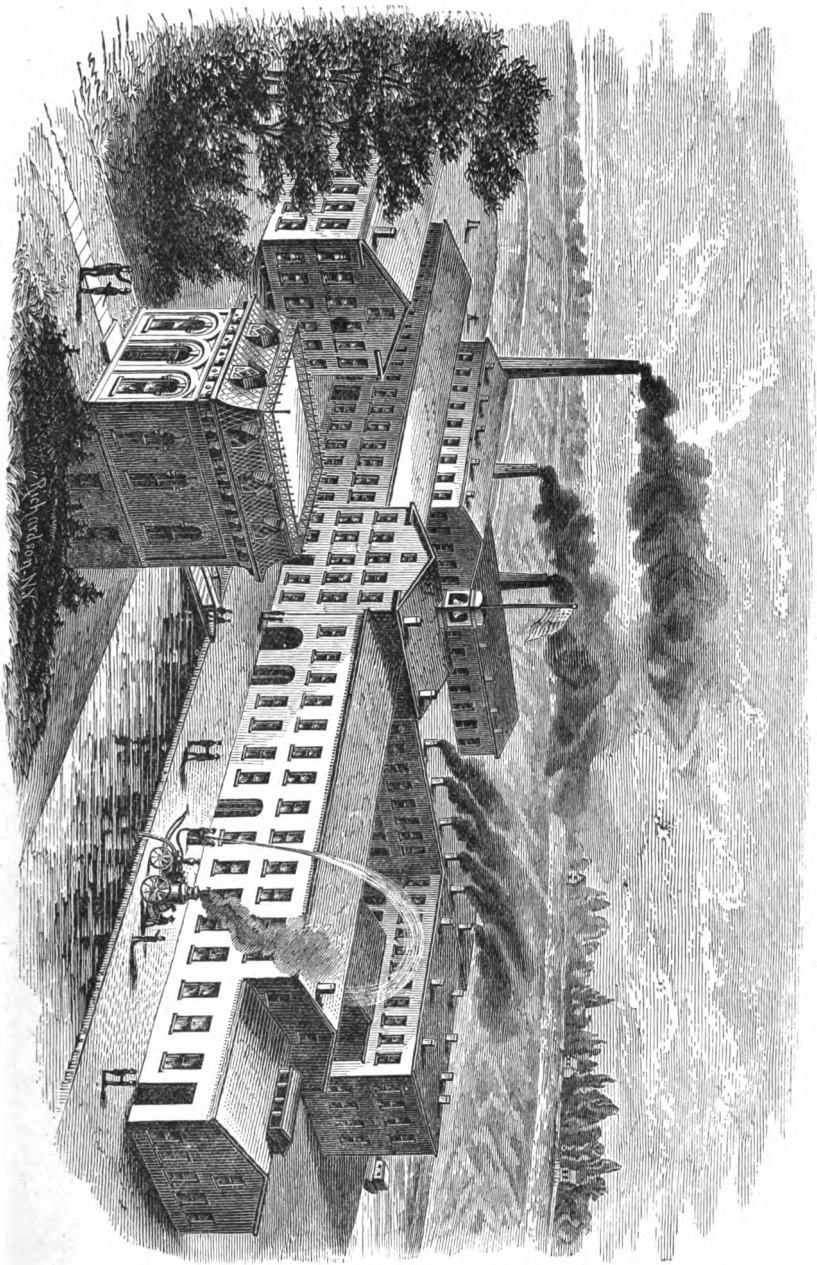
SENECA FALLS, N. Y.

H. W. KNIGHT, BOOK AND JOB PRINTER,
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THE NEW YORK
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ASTOR, LENOX AND
TILDEN FOUNDATIONS.







TO OUR PATRONS

AND THE GENERAL PUBLIC.

—o:o—

We have much pleasure in presenting to you in the following pages some testimonials in regard to the merits of the Silsby Steam Fire Engine, accounts of competitive trials of our Engine with those of other makers, reports of committees and councils, trials of engines, etc., etc.

These will give you some idea of the superiority of our Engines, but, as it may be more satisfactory to intending purchasers to refer direct to places where our machines are in service, (in many cases from 15 to 18 years,) on the following pages you will find a list of towns using them, to all or any of which we beg to refer you for information based upon experience, regarding the Silsby Steam Fire Engine.

Soliciting a continuance of your patronage,

We are, Very respectfully yours,

SILSBY MANUF'G CO.

POINTS OF SUPERIORITY.

—:O:—

We claim for our machine the following points of superiority—
viz:—

SIMPLICITY OF CONSTRUCTION.

There are no Valves in either our Engine or Pump. The Rubber and Composition Valves in Piston Pumps soon become defective, and are easily obstructed by small sticks, sawdust, sand, mud, etc., which, by destroying the vacuum, prevent the Piston Machine from working. Anything that goes through the Suction Basket, will pass through our Rotary Pump; it therefore cannot become clogged.

PUMPING SANDY OR DIRTY WATER.

The Rotary Pump can work sandy, gritty, or dirty water that would not only clog but cut a Piston Pump all to pieces.

ECONOMY.

Having so few parts, and working with from thirty to fifty per cent. less steam and water pressure, (thus avoiding excessive strain on boiler and machinery,) they are less liable to get out of order; it therefore costs less to keep them in repair.

SAVING IN HOSE.

Hose used on a Silsby Engine will last fully twice as long as that used on a Piston Engine. There is no motion to the Hose while our machine is working to its fullest capacity, and the pressure is uniform and steady. With Piston Engines there is always a jerking motion, wearing the Hose out quickly by friction on the ground. The pressure on the Hose on a Piston Engine varies from twenty to thirty pounds

at each blow of the piston against the volume of water, rendering it liable to burst; and losses by fire are largely increased by the bursting of hose.

EFFICIENCY.

The Silsby Engine will throw a larger quantity of water to a greater average distance; will draught water further without priming the pump; will do good work through longer lines of hose; and will work for more consecutive hours without stopping—than any Piston Engine possibly can.

RELIABILITY.

Owing to the absence of Valves, Connecting Rods, Balance Wheels, and other complications peculiar to Piston Engines, they never refuse to work, but may be relied on for effective fire duty under any and all circumstances.

STEADINESS OF OPERATION.

There is no motion to the machine when working; they can therefore be used on Bridges, Platforms, soft or uneven ground, and other places where Piston Engines would be useless.

CRANE-NECK.

Our Engines are built "crane neck" style, so that the machine can be turned in its own length.

BOILER FED WITH BOILING WATER.

An important feature in our machine is an apparatus, by means of which we utilize a portion of the exhaust steam for the purpose of heating the boiler feed water. This heating of the water to boiling point before passing it into the boiler, effects not only a saving in fuel, and rapid generation of steam, but, what is of the greatest importance, by keeping the Feed Pump and Supply Pipes constantly filled with hot water, there is no possibility of freezing up, even in the most severe climates.

DURABILITY.

Our machines are built throughout of the very best material, and in a thorough and workmanlike manner. The exposed metal parts are heavily nickel-plated, rendering them impervious to rust and very durable. We employ none but skilled mechanics in their construction, and build them complete and perfect in every respect.

ABOUT SIX HUNDRED

SILSBY STEAM FIRE ENGINES

ARE IN ACTIVE AND SUCCESSFUL SERVICE.

| | | | |
|---------------------|----------|-------------------------------|---------------|
| Ada | Ohio. | Bridgeton | N. J. |
| Adrian | Mich. | Brockport | N. Y. |
| Akron | Ohio. | Bucyrus | Ohio. |
| Albany | Ga. | Buffalo | N. Y. |
| Allentown | Pa. | Burlington | Iowa. |
| Alliance | Ohio. | Cadiz | Ohio. |
| Alpena | Mich. | Cairo | Ill. |
| Amboy | Ill. | Cambridge | Ohio. |
| Antwerp | Belgium. | Canal Dover | Ohio. |
| Ashland | Ohio. | Canal Fulton | Ohio. |
| Atchison | Kan. | Canandaigua | N. Y. |
| Atlanta | Ga. | Canton | Ill. |
| Augusta | Ga. | Canton | Miss. |
| Austin | Texas. | Canton | Mo. |
| Baldwinsville | N. Y. | Cardington | Ohio. |
| Bath | N. Y. | Carlisle | Pa. |
| Bay City | Mich. | Carson | Nevada. |
| Beaufort | S. C. | Carthage | N. Y. |
| Beaver Falls | Pa. | Catskill | N. Y. |
| Bellefontaine | Ohio. | Cedar Falls | Iowa. |
| Bellevue | Ohio. | Cedar Rapids | Iowa. |
| Bennington | Vt. | Centennial Fire Brigade | |
| Benton Harbor | Mich. | Centreville | Ind. |
| Berlin | Ont. | Charleston | S. C. |
| Binghamton | N. Y. | Charleston | W. Va. |
| Boyertown | Pa. | Charlotte | Mich. |
| Bristol | Pa. | Charlottetown | P. E. Island. |

| | | | |
|-------------------------------------|---------|----------------------|--------------|
| Chester | Pa. | Frederick | Md. |
| Cheyenne | W. Ter. | Freeport | Ill. |
| Chicago | Ill. | Gallipolis | Ohio. |
| Chillicothe | Ohio. | Galveston | Texas. |
| Chippewa Falls | Wis. | Geneseo | N. Y. |
| Circleville | Ohio. | Geneva | N. Y. |
| Clarksville | Tenn. | Gilmour & Co., | Ottawa, Ont. |
| Cleveland | Ohio. | Goderich | Ont. |
| Clinton | Iowa. | Grand Rapids | Mich. |
| Clyde | N. Y. | Greencastle | Ind. |
| Coldwater | Mich. | Greenville | Ohio. |
| Collingwood | Ont. | Griffin | Ga. |
| Columbia | S. C. | Guelph | Ont. |
| Columbus | Ga. | Hamilton | Ohio. |
| Columbus | Ohio. | Hannibal | Mo. |
| Corpus Christi | Texas. | Helena | Montana. |
| Corry | Pa. | Holliston | Mass. |
| Cortland | N. Y. | Homer | N. Y. |
| Council Bluffs | Iowa. | Honesdale | Pa. |
| Covington | Ky. | Hopkinsville | Ky. |
| Dallas | Texas. | Hornellsville | N. Y. |
| Danville | Ill. | Hot Springs | Ark. |
| Danville | Pa. | Horseheads | N. Y. |
| Dayton | Ohio. | Houston | Texas. |
| Delaware | Ohio. | Hudson | Wis. |
| Dubuque | Iowa. | Huntingdon | Pa. |
| Duluth | Minn. | Huntsville | Ala. |
| East Saginaw | Mich. | Ilion | N. Y. |
| Eaton Rapids | Mich. | Indianapolis | Ind. |
| Eau Claire | Wis. | Ingersoll | Ont. |
| Elgin | Ill. | Ishpeming | Mich. |
| Elkhart | Ind. | Ithaca | N. Y. |
| Elmira | N. Y. | Jackson | Mich. |
| Elyria | Ohio. | Jackson | Ohio. |
| Erie | Pa. | Jacksonville | Fla. |
| Eureka | Cal. | Janesville | Wis. |
| Evansville | Ind. | Jefferson City | Mo. |
| Fairbank, N.K. & Co., Chicago, Ill. | | Jefferson | Texas. |
| Fall River | Mass. | Jefferson | Wis. |
| Faribault | Minn. | Joliet | Ill. |
| Findlay | Ohio. | Kansas City | Mo. |
| Flint | Mich. | Kenosha | Wis. |
| Fort Madison | Iowa. | Kent | Ohio. |
| Fort Wayne | Ind. | Kenton | Ohio. |
| Fort Worth | Texas. | Keokuk | Iowa. |
| Frederickton | N. B. | Postoria | Ohio. |

| | | | |
|--------------------|--------|-------------------------|-------------|
| Knoxville..... | Tenn. | Muncy..... | Pa. |
| La Crosse..... | Wis. | Muskegon..... | Mich. |
| Lafayette..... | Ind. | Natchez..... | Miss. |
| Lake City..... | Minn. | National Watch Co.,... | Elgin, Ill. |
| Lancaster..... | Ohio. | Nebraska City..... | Neb. |
| Lansing..... | Mich. | Neenah..... | Wis. |
| La Salle..... | Ill. | Negaunee..... | Mich. |
| Leavenworth..... | Kan. | New Albany..... | Ind. |
| Lebanon..... | Ohio. | Newark..... | Ohio. |
| Lewisburg..... | Pa. | New Philadelphia..... | Ohio. |
| Lexington..... | Ky. | Nichols, Shepard & Co., | |
| Lima..... | Ohio. | Battle Creek, Mich. | |
| Lincoln..... | Neb. | Oakland..... | Cal. |
| Little Falls..... | N. Y. | Oberlin..... | Ohio. |
| Little Rock..... | Ark. | Oconto..... | Wis. |
| Lock Haven..... | Pa. | Oil City..... | Pa. |
| Logansport..... | Ind. | Omaha..... | Neb. |
| London..... | Ohio. | Oshkosh..... | Wis. |
| Louisiana..... | Mo. | Oswego..... | N. Y. |
| Lynchburg..... | Va. | Ottawa..... | Kan. |
| Lyons..... | N. Y. | Ottawa..... | Ill. |
| Macon..... | Ga. | Ottumwa..... | Iowa. |
| Macon..... | Mo. | Owosso..... | Mich. |
| Madison..... | Ind. | Paducah..... | Ky. |
| Mahonoy City..... | Pa. | Painesville..... | Ohio. |
| Manchester..... | Iowa. | Palmyra..... | N. Y. |
| Mansfield..... | Ohio. | Paris..... | Texas. |
| Marietta..... | Ohio. | Pekin..... | Ill. |
| Marietta..... | Pa. | Penn Yan..... | N. Y. |
| Marine City..... | Mich. | Peru..... | Ill. |
| Marion..... | Ohio. | Peterboro..... | Ont. |
| Martinsburg..... | W. Va. | Phillipsburg..... | N. J. |
| Marysville..... | Cal. | Pine Bluffs..... | Ark. |
| Mauch Chunk..... | Pa. | Pittston..... | Pa. |
| Meadville..... | Pa. | Pomeroy..... | Ohio. |
| Mechanicsburg..... | Pa. | Pontiac..... | Ill. |
| Medina..... | Ohio. | Pontiac..... | Mich. |
| Memphis..... | Tenn. | Portsmouth..... | Ohio. |
| Milton..... | Pa. | Portland..... | Oregon. |
| Moberly..... | Mo. | Pottstown..... | Pa. |
| Mobile..... | Ala. | Poughkeepsie..... | N. Y. |
| Monmouth..... | Ill. | Providence..... | R. I. |
| Monroe..... | La. | Quincy..... | Ill. |
| Monroe..... | Mich. | Racine..... | Wis. |
| Montgomery..... | Ala. | Rathbun, H. B., & Son, | |
| Mt. Vernon..... | Ohio. | Millpoint, Ont. | |

| | | | |
|------------------------|---------|------------------------------------|------------|
| Ravenna | Ohio. | Titusville | Pa. |
| Reading | Pa. | Toledo | Ohio. |
| Red Wing | Minn. | Tonawanda | Pa. |
| Richmond | Ind. | Topeka | Kan. |
| Richwood | Ohio. | Toronto | Ont. |
| Rochester | Minn. | Towanda | Pa. |
| Rochester | N. Y. | Troy | Ohio. |
| Rome | Ga. | Tyrone | Pa. |
| Saginaw | Mich. | Union Stock Yards, Chicago, Ill. | |
| St. Clair | Mich. | U. S. Government | |
| St. John | Quebec. | Upper Sandusky | Ohio. |
| St. Joseph | Mich. | Urbana | Ohio. |
| St. Paul | Minn. | Utica | N. Y. |
| St. Petersburg | Russia. | Vicksburg | Miss. |
| Salem | Ohio. | Virginia City | Nevada. |
| Salt Lake City | Utah | Waco | Texas. |
| San Antonio | Texas. | Walla Walla | Wash. Ter. |
| Sandusky | Ohio. | Warren | Ohio. |
| San Jose | Cal. | Warren | Pa. |
| Saratoga Springs | N. Y. | Warsaw | Ind. |
| Scranton | Pa. | Washington | D. C. |
| Sedalia | Mo. | Washington | Pa. |
| Selinsgrove | Pa. | Waterloo | N. Y. |
| Selma | Ala. | Watertown | N. Y. |
| Seneca Falls | N. Y. | Watertown | Wis. |
| Shanghai | China. | Waterville | N. Y. |
| Sharon | Pa. | Watsonstown | Pa. |
| Sheboygan | Wis. | Waukegan | Ill. |
| Sherbrooke | Quebec. | Waverly | N. Y. |
| Sherman | Texas. | West Depere | Wis. |
| Shreveport | La. | Wellsville | N. Y. |
| Sing Sing | N. Y. | Westfield | Mass. |
| Sioux City | Iowa. | Whitehall | Mich. |
| Smiths' Falls | Ont. | White Haven | Pa. |
| South Bend | Ind. | Whitesboro | N. Y. |
| Sparta | Wis. | Willard Insane Asylum, Ovid, N. Y. | |
| Springfield | Ill. | Wilmington | Del. |
| Springfield | Ohio. | Wilmington | N. C. |
| Stillwater | Minn. | Winnipeg | Manitoba. |
| Stratford | Ont. | Winona | Minn. |
| Sunbury | Pa. | Wooster | Ohio. |
| Tiffin | Ohio. | Worcester | Mass. |
| Tippecanoe | Ohio. | Youngstown | Ohio. |

From the Lewistown Gazettee, August 29th, 1877.

TRIAL OF STEAM FIRE ENGINES.

AN EXCITING TIME.

THE SILSBY IN THE LEAD.

According to previous announcements the first trial of Steam Fire Engines came off on Saturday last, naturally drawing a large number of persons from the country, neighboring towns and adjoining counties, while our own citizens, although divided in sentiment took a great deal of interest in the result. An early special train brought thirty red shirted fire laddies from Altoona, who with their Amoskeag steamer, the "Goodwill," were to give an exhibition of its power and their skill. On the same train came about thirty firemen of Huntingdon, with white ribbon badges, and a few from other towns up the river. By noon the town was full of people who took quite an interest in all the preliminaries, mingling freely with our firemen, obtaining information concerning the trial.

During the morning our boys of both companies were hurrying through the streets with hose carriages and engines, keeping up a pleasant din and clatter along with rural wagons and carriages and the general run of business vehicles.

Two engines were entered for trial,—the SILSBY, of Seneca Falls, N. Y., and the La France, of Elmira, N. Y.

The first trial took place on Main street at the feeder, with 500 feet of hose, 1½ inch nozzles, and subsequently with 200 feet of hose, 2 nozzles, 1 inch each and then with Y couplings, 4 nozzles each, 300 feet, the Silsby throwing water 156½ feet, the La France 144. Although the La France threw water well, the Silsby was clearly in the lead, both in height and distance, at one time throwing its spray 200 feet, the La France 185.

A very interesting trial to our citizens, though not on the programme, and therefore no test, took place on Market street, where the engines derived their water from the fire plugs, forcing water through 400 feet of hose with 1 inch nozzles, the Silsby throwing 189 feet, the La France 201, and proving that in emergencies the plugs can be used for fire purposes. The La France, while on trial at the feeder burst her hose near the engine.

The engines were then taken to the stone bridge and 1000 feet of hose laid, reaching within a short distance of the *Gazette* corner. At the signal the fires were lighted, and a few minutes were to determine the important question whether water could be lifted 27 feet, the creek being very low, forced through the above length of hose and then thrown any considerable

distance. The Silsby was soon at work, and as air and spray and then water began to emerge from the pipe, which required strong arms to hold it, the experiment was viewed with much interest by many hundreds who had congregated at that point. With the giant power of steam behind it, the water came out of the pipe, first a few feet, then ten, twenty, fifty, a hundred, a hundred and fifty, and finally about two hundred feet, much to the surprise of those who had doubts on the subject. The La France, we are sorry to say, owing, it is alleged, to leaks in the suction hose, failed to draw a supply of water, so that the Silsby had the field to itself, but it is no more than justice to say that her performance elicited general praise.

At 3 o'clock on Monday afternoon the most important trial came off, the requirements being to draw water at the stone bridge (27 feet,) and force it through 1,450 feet of hose to be laid up Main street and then on Third in the direction of the Presbyterian church. Both engines were at their posts, and shortly after three o'clock the fires were lighted. The La-France, which had been endeavoring to remedy the defects in the suction, again failed to draw water. In about ten minutes, perhaps less, the buzzing of the Silsby announced that she was at work, and as the last 500 feet of hose (the leather of the Henderson) began to expand its resisting power was watched with a good deal of anxiety. But it stood the test, and foot upon foot of water was thrown from its inch nozzle 173 feet 4 inches. It continued working for more than an hour, at different times throwing a vertical stream as high as the top of the rod on the Presbyterian church steeple, but after an increase of steam pressure finally burst the leather hose near its junction with the gum, which ended the performance, leaving everybody satisfied that it could do its work well and effectually.

The distances thrown, as measured by Frank H. Wentz, were as follows :

500 FEET—1½ INCH NOZZLES—AVERAGED.

Silsby,..... 200 feet. | La France, 187 feet.

200 FEET—2 NOZZLES.

Silsby,..... 200 feet. | La France, 185 feet.

300 FEET,—Y COUPLINGS, 4 NOZZLES.

Silsby, 156½ feet. | La France, 144 feet.

400 FEET,—AT PLUGS, 1 INCH NOZZLES.

[This was an impromptu test, not on distance, but simply to ascertain if on an emergency the plugs could furnish the Steamers with water for fire purposes.]

Silsby, 189 feet. | La France, 201 feet.

1000 FEET.—1 INCH. 1½.

Silsby 200½, 195,

1450 FEET— 1 INCH NOZZLE.

Silsby, 173½ feet.

The weight of the Silsby is 5,995, that of the La France 5,990 lbs.

[At a subsequent meeting of the Council, the Silsby engine was purchased.—S. M. Co.]

COMPETITIVE TRIALS

OF THE

SILSBY STEAM FIRE ENGINE

WITH ENGINES OF OTHER MAKERS.

Action of the Council at Elmira, N. Y.

ELMIRA, N. Y., Feb. 15, 1869.

Whereas, In the trial of Steam Fire Engines which took place in this city on Friday and Saturday last, the Rotary maintained itself in good working order throughout the entire trial, and through both days; and

Whereas, The Amoskeag or Piston machine, after the first day's trial, was unable to come to time for the second; and

Whereas, The members of the Common Council have had ample opportunity to examine and satisfy themselves as to the respective merits of the two machines; and

Whereas, The faith of the Common Council, by resolution adopted at a previous meeting, is pledged to purchase the engine which on trial shall prove most satisfactory; and

Whereas, The Rotary Engine by its work has given satisfactory demonstration that it is the superior machine; and

Whereas, This question should be decided by the Common Council which has had the matter in charge; and

Whereas, The powers of this Common Council will expire in about two weeks from this date; therefore,

Resolved, That the Select Committee on Trial of Engines is hereby discharged from further action in the premises, that the trial is hereby declared closed, and that in the opinion of the Common Council, the Rotary Engine is the one which the city ought to purchase.

Resolved, That the Mayor is hereby authorized and directed to purchase for the city the First Class Rotary Steam Fire Engine which has just concluded its trial, provided that MR. SILSBY will take in exchange and part payment therefor, the Amoskeag Engine No. 1, now owned by the city, at the price originally agreed upon, and that a sum sufficient to make the balance of the purchase is hereby appropriated from the special and extraordinary fund.

NEENAH, Wis., Dec. 13, 1869.

S. L. MCFADDEN, Esq., Mayor of Logansport, Ind.:

Dear Sir:—Mr. Horace Silsby of Chicago wishes me to give you a statement of my experience with reference to Steam Fire Engines. About one year ago, I was appointed by our village authorities to ascertain and report to them what in my judgment would be the best engine for the place to purchase. I at once corresponded with different manufacturers, as also with the Chief Engineers of several cities. Of course I received answers widely different in opinion, but this I noticed, viz.: That in whatever cities a certain engine was used, there would be a decided preference given to that make. I finally reported the whole matter to our Trustees, and gave as my opinion that we could buy on our own judgment, and desired that five more citizens should be added to the Committee, and that we should have power to go forward and buy, which was adopted. About this time we received a proposal from MR. SILSBY for one of his third class Rotaries. We accepted, on certain conditions, one of which was, that he was to place one of his engines alongside of one of the Amoskeag Engines, and if (all things considered) it did as good fire duty as did the Amoskeag, we would conclude the trade. We placed the engines side by side in Oshkosh, both taking water through the same length of hose, and playing through 500 feet each. Our Committee, not wishing to see any fancy throwing, desired MR. SILSBY not to place more than 80 lbs. of steam on, that being all that is necessary for good fire duty. The Amoskeag carried as high as 120 lbs., and then only succeeded in throwing an occasional spray 10 to 12 feet farther than the Rotary, both using the same nozzle. Then each played through 250 feet of hose, two streams, same nozzles, the Amoskeag had 103 lbs. of steam and the Silsby 80, and both threw about the same distance. The Amoskeag was then requested to bring her steam down to 80 lbs., when the Rotary threw 15 feet higher than she did. (Cheers for the Rotary.)

The Rotary threw solid water ten to twenty feet further than the Amoskeag. The latter, in trying to "beat," burst three sections of hose, while the Rotary quietly performed her work without any apparent labor. So much for the trial, but bear in mind the Rotary was only third class, while the other was (as her engineer informed me) almost first class, and the Rotary did more work with 80 lbs. of steam than the other with 103. I do with pleasure recommend the Rotary Engine for the following reasons, viz: She will do more work with less steam than any other I have ever seen, will not be one-half as hard on hose, is more simple in construction, therefore not so easy to get out of order, also is more easily operated; in fact, any man of ordinary capacity can learn to run one in two hours. I have written this without previous thought, and entirely from memory, so I have not itemized at all, not as much as in justice to our engine I ought. I will only add that I believe the Rotary Engine, made by H. C. SILSBY & Co., to be the best, (all things considered,) that is now manufactured, and this after a year's careful inquiry and study, to say nothing of former experience with steam. Also, every statement made by the firm to our Committee, with reference to the engine, we have found emphatically true. We met MR. SILSBY at first with some distrust, (owing to what had been said with reference to his machine,) but parted with him having become fully convinced that he says only what he can substantiate, with reference to the Rotary.

Very truly yours,

R. D. TORREY, Sec'y for Committee.

P. S.—I am authorized to say that the entire Committee endorse the above statement.

R. D. TORREY.

Late Trial of Engines in Toronto, Canada—The Committee's Report.

The following is the Report of the Standing Committee on Fire, Water and Gas, on the recent trial of Steam Fire Engines and the purchase from the successful competitor:

To the Council of the Corporation of the City of Toronto:

The Standing Committee on Fire, Water and Gas, beg to submit their Report No. 7: Your Committee beg to report, for the information of the Council, their proceedings in the matter of the purchase of the new Steam Fire Engine No. 4, under the authority of the order of the Council, on the 17th of February last, authorizing the committee to negotiate for the purchase of another engine. Your committee communicated with the following Fire Engine manufacturers, asking for proposals to furnish a first-class Fire Engine, viz: The Silsby Manufacturing Company, New York; Messrs. Clapp, Jones & Co., New York; The Amoskeag Manufacturing Company, New Hampshire; Messrs. Hyslop & Ronald, Chatham, Ont.; and Buchanan & Co., Mon-

treal, agents for Shand, Mason & Co., London, England. The conditions upon which the proposals were received, and of which all parties were informed, were, that parties offering engines, would be required to forward their engines to this city, at their own cost of conveyance and risk, to be subjected to any trial or test the committee might consider necessary or desirable, after which the committee would decide upon a purchase, it being understood that the Engine most satisfactory to the committee would be selected. The tenders were accordingly received from the Silsby Manufacturing Company, for a first-class Engine; from Hyslop & Ronald, Chatham, one of their best Engines; from Clapp, Jones & Co., Hudson, New York, a second-class Engine; from the Amoskeag Company, United States, a first-class Engine; and from Buchanan & Co., Montreal, an English 300-gallon vertical Engine.

Previous to making arrangements for the trial, your Committee thought it advisable to test the capabilities of the No. 2 Rotary Engine, which has been in use for the past ten years. The following is the result, as reported by the Chief Engineer, showing the time in which steam was raised, the water pressure, together with the distance thrown through 750 feet of hose:

| | | | |
|------------------|------------|------------------|------------|
| 10 lbs. steam... | 5 minutes. | 25 lbs. steam... | 7 minutes. |
| 15 " " | 6 " " | 30 " " | 7½ " " |
| 20 " " | 6½ " " | | |

The highest pressure of steam and water noted during the test was from 60 to 85 lbs. of steam, and from 140 to 190 lbs. of water, and with a 1½ inch nozzle the water was thrown a distance of 200 feet.

The work as above performed by this Engine, considering the length of time it has been in service, is highly satisfactory.

The cost of repairs to this Engine during the last three years, will be seen from the following statement of the Chief Engineer:

FIRE DEPARTMENT, ENGINEER'S OFFICE, }
TORONTO, July 13, 1871. }

MEMORANDA of repairs to No. 2 Steam Fire Engine, since it arrived in this city, on the 6th of January, 1868, after having a new inside to the boiler and other repairs, at the workshop of the Silsby Manufacturing Company:

1868—No repairs required.

| | |
|--|--------|
| 1869—Jan. 29.—New end to Stay in front, and altering Suction, Hose bearers..... | \$1 00 |
| April 30.—Flanges for Rubber Springs..... | 8 00 |
| May 6.—New end to Stay, and counter-sunk Bolts and Nuts to Wheels..... | 1 15 |
| Sept. 6.—Tongue repaired..... | 37 |
| Nov. 2.—New iron part to Feed Pump..... | 10 30 |
| Dec. 11.—One L Cock..... | 50 |
| 1870—Jan. 11.—Steam Whistle repaired..... | 45 |

Total.....\$21 77

NOTE.—The Flanges for Rubber Springs are additions for the protection of the Springs.

Memoranda of cost of repairs to No. 2 Engine, caused by falling into a drain on Adelaide street, on the night of the 4th of March, when returning from a fire on Dutchess street:

Sundry repairs to No. 2 Engine, by John Fenson.....\$24 70

JAMES ASHFIELD,
Chief Engineer Fire Department.

Having tested this Engine, and having also ascertained from the Engineer in charge that forty pounds of steam pressure was hardly ever exceeded in practical use, your Committee consequently in agreeing upon a programme of trial, limited the pressure of steam to eighty pounds, being double the pressure which has at any time been found necessary to use—from twenty-five to thirty pounds has been the average pressure. Friday, the 30th of June last, was the day finally arranged by the Committee for the trial to take place. Only two engines entered for competition, one a Rotary Engine, from the Silsby Manufacturing Company, of Seneca Falls, N. Y., and the other a Piston Engine, from the manufactory of Clapp, Jones & Co., Hudson, N. Y. The Amoskeag Company, in a letter addressed to the Committee, declined to enter for competition, and Messrs. Hyslop & Ronald, and Buchanan & Co., who also sent proposals, but did not send an engine on the day of trial, although both received timely notice of the same. The trial was, therefore, between the two engines first mentioned. With respect to Messrs. Hyslop & Ronald, your Committee would state that, in order to give them a full opportunity to compete at the trial, the time was extended from the 14th of June, the day first named by the Committee, till the 30th of June—but, as above stated, they failed to send an Engine. Immediately before the commencement of the trial, Mr. Silsby and Mr. Clapp, who were present, were furnished with a copy of the programme agreed upon, which was the first intimation either party had as to what the tests would be. The programme was adhered to throughout, with the exception of the test through 1,500 feet of hose, which was abandoned for the want of hose of sufficient strength.

From the notes taken during the progress of the trial, your Committee submit the following as the result:

TIME OF MAKING STEAM.

| SILSBY'S. | | CLAPP'S. | |
|-------------|-----------|-------------|-----------|
| | MIN. SEC. | | MIN. SEC. |
| 5 lbs..... | 2 30 | 5 lbs..... | 6 00 |
| 10 lbs..... | 4 45 | 10 lbs..... | 7 00 |
| 15 lbs..... | 5 30 | 15 lbs..... | 9 00 |
| 20 lbs..... | 6 30 | 20 lbs..... | 11 30 |

Silsby's Engine threw the first water through the nozzle in eight minutes, and the Clapp Engine threw the first water in 9:15.

| SILSBY'S. | | DISTANCES. | | CLAPP'S. | |
|---------------|-----------|------------|---------------------------------|-----------|--|
| | MIN. SEC. | | | MIN. SEC. | |
| 100 feet..... | 8 30 | | 100 feet..... | 9 15 | |
| 150 feet..... | 9 20 | | 150 feet..... | 9 30 | |
| 200 feet..... | 10 02 | | 200 feet..... | 10 40 | |
| 230 feet..... | 11 00 | | (200 feet was greatest distance | | |
| 258 feet..... | 11 35 | | thrown by the Clapp Engine.) | | |

The distance of 258 feet was the longest distance attained, and, as stated in the above table, was accomplished by the Silsby Engine.

Two lines of hose, of 500 feet each, were then attached to each Engine, and with $1\frac{1}{4}$ inch nozzle, the Silsby Engine threw 198 feet, and the Clapp & Jones Engine 170 feet. An inch and a-half nozzle was then used, with one line of 500 feet of hose, when the Silsby Engine threw 227 feet, and the Clapp & Jones 160 feet. The hose was then lengthened to 1,000 feet, and $1\frac{1}{4}$ inch nozzle used. The Silsby Engine in this test threw 190 feet, and the Clapp & Jones 160 feet.

The Engines were then taken to Queen street; one was placed at the water tank at the corner of Parliament street, and the other at the tank on the corner of Seaton street, each tank containing 1,000 gallons of water; a line of hose of 100 feet in length was then attached to each Engine—the one on the corner of Parliament street playing into the tank on the corner of Seaton street, and the Engine on the corner of Seaton street playing into the tank on the corner of Parliament street. At the expiration of twenty minutes the order was given to cease playing, when it was found, by measurement, that the water in the tank from which the Silsby Engine was working, had gone down six inches, proving that a greater quantity of water was pumped by that Engine during the time stated.

The notes taken as to the pressure of steam and water used by each Engine, indicated that the average pressure of the Silsby was $66\frac{1}{2}$ lbs. of steam and $136\frac{1}{2}$ lbs. of water, and of the Clapp & Jones Engine, 78 lbs. of steam and 130 lbs. of water.

Your Committee, not being practical Engineers, thought it advisable to engage a first-class Engineer to watch the proceedings carefully, inspect both Engines, and report their merits. Mr. William Gill, head Engineer of the Rolling Mills, a gentleman standing at the head of his profession in Canada, was engaged for that purpose. The following is a copy of his report:

TORONTO, July 3, 1871.

MR. ALD. BOUSTEAD:

DEAR SIR:—In accordance with your instructions, I inspected the Fire Engines during the trial on the 30th of June last. I paid partic-

ular attention to the operations of the Engines, and although previously prejudiced in favor of a Piston Engine, I found that, after a perfectly fair trial, the Rotary Engine threw a larger quantity of water than the other Engine, and in a more compact body. It also threw it a greater distance than the other Engine did the smaller quantity; and this with a pressure of ten to fifteen pounds less than the Piston Engine, which is a very great advantage. I would, therefore, recommend the Corporation, or any other party requiring a Fire Engine, to purchase the Rotary, as the most efficient of the two Engines.

I am, yours truly,

WILLIAM GILL, Engineer.

When your Committee met, on the following Monday afternoon after the trial, to receive the reports and decide upon a purchase, a letter from Mr. Clapp, addressed to the Committee, was read, requesting that another trial be granted, or that he be allowed time to put in another cylinder, and change the stroke of his Engine, as he objected to being limited to 80 pounds pressure of steam; otherwise he had no fault to find. To this your Committee did not assent, as they felt it would not be fair or right to do so.

After carefully considering the Reports, and discussing the matter fully, your Committee unanimously agreed to purchase the Rotary Engine offered by Mr. Silsby, that Engine, in the opinion of the Committee, being the most efficient; Mr. Silsby guaranteeing the Engine and keeping it in repair six months; if the Committee should at any time prefer iron wheels, to the wooden wheels at present on the Engine, Mr. Silsby also agreed to furnish the same, delivered here without expense to the city.

Respectfully submitted,

JAMES B. BOUSTEAD, Chairman.

COMMITTEE ROOM, TORONTO, July 14, 1871.

From the Toronto Express, July 31, 1871.

From the State Democrat, Lansing, Mich., Feb. 8th, 1872.

On Monday, after several days' delay, resulting from the non-arrival of the engine of Messrs. Clapp & Jones, the long looked-for trial of Steam Fire Engines occurred in this city. The day was anything but a pleasant one, a driving snow storm being in "active operation" during the entire day. But, notwithstanding all this, a large number of people assembled at the scene of operation and witnessed the trial with much eagerness. The competition, as is well known, was be-

tween the machines manufactured by the Silsby Manufacturing Company, of Seneca Falls, N. Y., and Messrs. Clapp & Jones. Considerable delay occurred in getting started from the engine house, from the fact that the Clapp & Jones men *were obliged to prime the pump of the engine and use a check-valve, to enable the machine to raise the water the height required on the trial.* To this the Silsby men objected, as they wished both machines to go to work perfectly dry. This, of course, would seem perfectly fair, to give equality to each machine. They, however, consented to this advantage, and the engines moved to the bridge on Michigan avenue, and were brought up side by side.

The committee appointed by the Mayor, by authority of the Common Council, consisting of Aldermen Blair, Beecher, Scofield and Fuller, and Chief Engineer Shank, were promptly on hand. When the word to "fire up" was given, each engine in a moment commenced steaming up, and in $8\frac{1}{4}$ minutes the Silsby Engine had a stream of water through a hundred feet of hose, and the Clapp & Jones in $9\frac{1}{4}$ minutes, thus making a difference of $1\frac{1}{4}$ minutes in favor of the former machine. *The Silsby also had a stream sixty feet before the Clapp & Jones commenced throwing at all.* As we print the report of the Committee below, it is unnecessary for us to give a detailed account of each trial, as the reader will observe the difference in each engine by the report. The Silsby, a rotary engine, is very handsome in appearance, compact, works remarkably still and like clock-work, while that of Clapp & Jones is a piston engine, does not run with that stillness, and judging from the motions of the engineer, he had his hands full in screwing up bolts and oiling.

As will be seen by the report, *the Silsby used 26 per cent. less average steam pressure, and 33 per cent. less water pressure.* We cannot see how a committee appointed to test the workings, capacity, and everything connected with steam fire engines, could decide otherwise than did the committee in this instance. In fact, the trial was similar in its final results to the numerous tests of these engines, in which the Silsby came out ahead. The Silsby engine has been purchased by the city, at a cost of \$5,000. Both engines are of the third class. Below is the report of the Committee:

To his Honor, the Mayor of the City of Lansing:

Your Committee, to which was referred the acceptance of a steam fire engine, would respectfully report the following in connection with the tests adopted by the Committee:

In the first trial, as per figures in margin of tests, the Silsby engine had a stream through five hundred feet of hose in eight and one-quarter minutes—the Clapp & Jones engine in nine and three-quarters,

making a difference of one and one-half minutes in favor of Silsby's engine, and at the time the water first appeared through the hose attached to the Clapp & Jones engine, the Silsby engine was throwing a stream sixty feet. The trial lasted fifty minutes, resulting as follows: Clapp & Jones engine, average water pressure 68 lbs., steam pressure 48 lbs., distance 92½ feet; Silsby engine, average water pressure 95 lbs., steam pressure 42 lbs., distance 100 feet; making a difference of seven and one-half feet, with six pounds less steam, for the Silsby Engine.

The engines then worked ten minutes with the nozzles changed from 1½ to 1 inch, Clapp & Jones' engine throwing a stream 160 feet, and Silsby's engine throwing a stream 141½ feet, making a difference of eighteen and one-half feet in favor of Clapp & Jones. The steam and water pressure on the Clapp & Jones was more than on the other engine, but as this short trial was suggested by the committee on the ground, in the hurry they did not get the water pressure exact.

In the second trial, which was throwing water through two hundred and fifty feet of hose, each engine with two streams of that amount, the Silsby threw water thirty-two and one-half feet further than the Clapp & Jones engine, and did it with nine pounds less steam.

In the last trial, which was through ten hundred and fifty feet of hose, the Clapp & Jones engine threw water twenty feet and ten inches further than the Silsby engine, but in doing this the Clapp & Jones engine had an average of two hundred and eight pounds of water pressure, and one hundred and twenty-six and one-quarter pounds of steam pressure; the Silsby engine working with an average of one hundred and thirty-six pounds water pressure, and ninety-nine and one-half pounds steam pressure. Taking this difference of steam and water pressure into consideration, the committee gave the preference to the Silsby engine. The trial on quantity was omitted, having no means of testing it accurately.

In construction we give the Silsby engine the preference; she is so braced from the tongue to the forward axle as to make her much stronger in running over rough roads or crosswalks. She has a small "doctor" on one side, which is a complete engine of itself, to be used in filling the boiler, whether the engine is running or not, while the Clapp & Jones engine must run to put water in her boiler. *The Silsby is also finished in much finer style, with far more difference in the finish than in the price of the two engines.*

The Silsby engine also runs very still, with very little if any wear on leading hose, *while the Clapp & Jones engine, in our opinion, would*

wear out a good article in a very short time. Taking all things into consideration, we think we are serving the best interests of the city when we say to you—purchase the Silsby engine.

(Signed.)

ALEXANDER BLAIR.

S. G. SCOFIELD.

S. H. BEECHER.

D. K. FULLER.

From the Leader, Toronto, Ontario, May 29th, 1874.

TRIAL OF FIRE ENGINES—INTERESTING EXPERIMENTS.—An interesting trial of steam fire engines took place on Wednesday afternoon at the foot of Bay street, in this city, between an engine offered for sale by Messrs. Hyslop & Ronald, of Chatham, Ont., and the steamer J. B. Boustead, purchased three years ago from the Silsby Manufacturing Company, of Seneca Falls, N. Y. The trial attracted the attendance of the Chairman and members of the Committee on Fire, Water and Gas, of the City Council, the Chief Engineer, and several members of the Fire Brigade, as well as a large number of citizens. The greatest possible care was taken to secure an impartial trial, because a feeling prevailed in favor of encouraging home manufacture, in preference to the imported article; provided, of course, that as good an engine could be procured at home; but the chief object was of course to secure the most powerful engine which could be got, no matter where it was manufactured. The trial was therefore conducted with the greatest fairness throughout.

The Chatham, Ont., engine was the first tested, with 500 feet of hose, and a $1\frac{1}{4}$ inch nozzle. Water was thrown a distance of 178 feet. Two streams were then thrown through $\frac{3}{4}$ inch nozzles, about 15 feet above the flag staff on the building of Messrs. Gordon & Mackay, making altogether a distance of about 100 feet. Two streams were then thrown through $1\frac{1}{8}$ inch nozzles, but the water only reached the cornice of the building.

The J. B. Boustead, Silsby engine No. 3, was then tested with the following result: She played through the same length of hose (500 feet) and $1\frac{1}{4}$ inch nozzle, with 65 pounds of steam and 165 pounds of water pressure, and threw a powerful stream to the surprising distance of two hundred and twenty-nine feet, or *fifty-one feet further* than the distance reached by the Chatham engine. Two streams were then played through $1\frac{1}{8}$ inch nozzles, with 500 feet of hose, and the water reached a much greater height than that reached by the Chatham engine. A $1\frac{1}{2}$ inch nozzle was then attached to the hose, and the water was thrown in great volumes completely over the building. As a natural consequence the volume of water thrown by the Silsby was

much greater than that discharged by the Chatham engine, and the superiority of the former was so conclusive that everybody who witnessed the trial had to confess the fact. However much some of them were disposed to see the Canadian engine come off victorious, still the stern fact could not be denied, that although a good machine, she could not compete with the J. B. Boustead. The Committee on Fire, Water and Gas, of course had no other alternative but to recommend the City Council to purchase the Silsby. We regret for the sake of our own manufacturers, that their engine did not prove itself the better of the two, but as we cannot afford to spend money on an inferior article, at the risk of destruction of public property, we think the very best engine should be purchased, and the Boustead certainly stood out in bold relief yesterday in this respect. *During the trial the Piston engine burst seven sections of hose. The Silsby engine went through the trial without bursting any hose. Both engines used the same kind of hose.*

A second trial of the Silsby (J. B. Boustead) and the Chatham fire engines, took place yesterday on the Fair Green, in the presence of a very large crowd of interested spectators, among whom were representatives of the various insurance companies of the city, members of the city corporation, the fire brigade, &c.

The trial was conducted under the management of the committee, consisting of ex-Alderman Bell, Chairman of the Board of Water Commissioners, Mr. D. Walker, proprietor of the Walker House, and Mr. Clapp, Superintendent of the Water Works. The most scrupulous care was taken to ensure an impartial testing of the qualities of the respective engines, and, at the close, the friends of the competing engines expressed themselves highly pleased with the way in which the trial was conducted.

The Chatham engine was brought into action first, and played ten minutes at its utmost power, but suddenly it broke down and became of course useless—telling of course very unfavorably upon the feelings of the spectators who were not prepared for a breakdown. The engine played one stream through 500 feet of hose, and $1\frac{1}{4}$ inch nozzle, and it threw water a distance of 198 feet, making an average of 160 feet. It was then of course working under a tremendous head of steam, and did all it was capable of doing, when the accident happened which disabled it.

The Silsby engine had commenced working in the meantime, throwing one stream with the same length of hose and the same size nozzle, and although not fairly under headway, it cast a distance of 203 feet. With two streams and $1\frac{1}{4}$ inch nozzles, it threw water 202 feet. One stream was then shut off, when the water from the other reached a distance of two hundred and twenty-five feet six inches. The Silsby, it therefore was evident, was increasing her power the

longer she worked, but she was ordered home, as the Chatham engine was unable to proceed with the trial. The trial, as a natural consequence, proved the great superiority of the Silsby engine which has already been in active service for three years, and should not be regarded as good as when new. As we have already stated, we would much rather have seen the Chatham or Canadian engine come off victorious, but as facts are stubborn things, all who witnessed the test had to acknowledge that she stood little chance when brought into competition with her American sister. We trust that the time may arrive when we can produce as good, if not better steam fire engines, than our American Cousins, but at present we must confess that we are reluctantly compelled to say that Brother Jonathan has got the start of us. We take it for granted that the Committee on Fire, Water and Gas, will order the new one from the Silsby Manufacturing Company, because we feel assured that the citizens who witnessed the trial yesterday would be satisfied with no other engine.

CHICAGO STEAM FIRE ENGINE TRIALS.

TRIAL NO. 1.

From the Chicago Times, August 24, 1874.

THE SILSBY AHEAD AGAIN—A STEAM FIRE ENGINE TRIAL.—An exciting test trial of first-class steam fire engines of the Silsby rotary and the Amoskeag piston patterns occurred yesterday afternoon, at the foot of Monroe street, and was witnessed by the board of police commissioners and members of the department. Considerable interest was manifested in the result, inasmuch as the Silsby was pitted against one of the best Amoskeag engines in the department, and some doubts were expressed as to the ability of the former to successfully compete with the latter. But the Silsby proved true to its record as an unequaled machine, and surprised every one who witnessed the trial by its fine throw and great volume of water. Both engines took suction from the river, and started with three gauges of warm water in the boilers, the steam pressure being limited to 100 pounds. In ten minutes after the lighting of the fires, the Amoskeag showed 102 pounds steam and 150 pounds water pressure, and the Silsby showed 92 pounds steam and 195 pounds water pressure. The first play was through 500 feet of hose and one and one-quarter inch nozzle. The Silsby on the first trial threw 189 feet and 9 inches, and the Amoskeag 194 feet and 9 inches. The second play was through two leads of 150 feet of hose, and through one and one-quarter inch nozzle. The Silsby threw a stream 179 feet and 8 inches, and the Amoskeag 157 feet and 4 inches.

The third play was through the same amount of hose, but through a one and one-eighth in. nozzle. The Silsby threw 195 feet and 2 inches, and the Amoskeag 194 feet and 4 inches. The fourth play was through the same amount of hose, single lead and one and three-eighths inch nozzles. The Silsby threw 237 feet and 5 inches, and the Amoskeag 213 feet and 7 inches. The fifth play was through two lines of hose, 250 feet each, connected at the end by a Siamese coupling. The Silsby threw a stream one and three-eighths inch in size a distance of 248 feet and one inch. At this point the Amoskeag became demoralized and refused to play owing to the presence of chips or sand in the valves of the pumps. It was utterly unable to draw or throw water, and had in consequence to be retired from the field, leaving the Silsby to make the fifth and last test alone. Throughout the whole trial, the Silsby held its streams to an average distance of from 50 to 75 feet greater than the Amoskeag, and was highly commended by the marshal and police commissioners for the very extraordinary excellence displayed. It was one of the best trial tests ever witnessed in this city, and gave universal satisfaction.

From the Chicago Inter-Ocean, August 24, 1874.

TRIAL OF FIRE ENGINES.—The trial of engines for the benefit of the department, was made yesterday, at the foot of Monroe street. The competitive engines were the Silsby and No. 21, one of the most powerful Amoskeag engines in the Chicago fire department. Two weeks ago the first trial occurred, but a fair test was not then given to the Silsby, and the police commissioners determined that a second exhibition should be given. When the trial commenced there were three gauges of warm water in the boilers, and at no time during the trial was the amount of steam allowed to exceed 100 lbs. The engines made steam very fast. The first test was through 500 feet of hose, and one and one-quarter inch nozzle. The Amoskeag threw a stream 194 feet 9 inches, and the Silsby threw 189 feet 9 inches. The second test was through two leads of 250 feet hose each, and one and a-quarter inch nozzles. The Amoskeag threw 157 feet and 4 inches, and the Silsby 178 feet and 8 inches. The third trial was through two leads of 250 feet hose each, and one and one-eighth inch nozzles. The Amoskeag threw 174 feet 4 inches, and the Silsby 195 feet 2 inches. The fourth test was through 250 feet single hose, and one and three-eighths inch nozzles. The Amoskeag threw its stream 218 feet and 7 inches, and the Silsby 237 feet and 5 inches. The fifth and last trial was through two lines of hose, of 250 feet each, connected with the Siamese coupling. The nozzle was one and three-eighths inch. The Silsby engine threw the stream a distance of 248 feet. The Amoskeag was incapacitated on account of the presence of sand in the valves of the engine,

and it was withdrawn from the contest. One additional recommendation in favor of the Silsby engine is the ease and steadiness with which it works. In this particular it is far superior to any engine in the market. The fire department intends to purchase three or four engines with the unexpended appropriation, and these trials were made in order to determine the best engines to be purchased.

From the Chicago Tribune, August 2d, 1874.

SILSBY VS. AMOSKEAG.—The old enmities of black and white fade into insignificance now-a-days compared with the hostility of Amoskeag and Silsby. Black and white are invested with some ideal attributes. Silsby and Amoskeag are patterns of fire engines. A trial occurred yesterday between representatives of both makes, at the corner of Monroe street and the river. Both engines started with three gauges of warm water. In ten minutes from the moment of starting, the Silsby engine had 92 pounds of steam and 195 pounds of water; the Amoskeag 102 pounds of steam and 150 pounds of water. The first play was through 500 feet of hose, with one and one-fourth inch nozzle, which resulted, Amoskeag 194 feet and 9 inches, and Silsby 189 feet and 9 inches. The second test was through two leads of 250 feet each, one and one-quarter inch nozzle, and came out—Amoskeag 157 feet and 4 inches, Silsby 170 feet 8 inches. The third test was through two leads of 250 feet, with one and one-eighth inch nozzle; Amoskeag 174 feet 4 inches, Silsby 195 feet 2 inches. Test No. 4 was with 250 feet of hose, one and three-eighths inch nozzle; Amoskeag 213 feet 7 inches, Silsby 237 feet 5 inches. The fifth test was with two leads of hose, 250 feet each, with Siamese coupling. The Silsby engine shot a one and one-eighth inch stream 248 feet and one inch, while the Amoskeag engine was "bunded up" with shavings and forced to withdraw. The average stream of the Silsby engine was 50 feet beyond that of the Amoskeag competitor.

TRIAL NO. 2.

From the Chicago Times, Sept. 16th, 1874.

ANOTHER GREAT STEAM FIRE ENGINE TRIAL—THE SILSBY STILL AHEAD.—Another trial of first size steam fire engines took place yesterday, at the corner of Michigan avenue and Madison street, before the board of fire commissioners and other interested parties, which ought to decide the question of superiority for some time to come. Four different makes of engines went into the trial, viz.: The Silsby, Gould, Clapp & Jones and Ahrens. The trial lasted from about half-

past ten until five o'clock. The first test was to start with cold water in the boilers; and play through 500 feet of hose with one and one-quarter inch nozzle. The Silsby got the first throw of 175 feet, 200 feet, and 250 feet, and the Gould the first 225 feet. The Silsby threw 264 feet 7 inches. The second test was with 500 feet of hose, one and one-half inch nozzles, during which the Ahrens engine became badly disabled. No measurements were taken of this throw. Third test, 250 feet of hose, one and one-half inch nozzles, with the wind, the Silsby throwing 252 7 inches. Fourth test, same length of hose and nozzle against the wind, the Silsby throwing 194 feet 6 inches. The streams from the Silsby were much more steadily maintained, and on the average were about 50 feet ahead of all others. The Gould, about which so much was said and promised, was badly beaten and distanced by all her competitors. The Silsby rotary engine undoubtedly demonstrated its superiority over the different piston engines, proving itself more powerful and steadier in operation, owing to the absence of valves, connecting rods, pistons, link boxes, etc., etc. The Silsby engines have been in use in this city for the past fifteen years, there being fourteen in use here, have given satisfaction, being more reliable, and costing less for repairs and hose, than those known as piston engines.

From the Chicago Journal, Sept. 16th, 1874.

SILSBY AHEAD—RESULT OF THE FIRE ENGINE TRIAL YESTERDAY.
—The trial of engines took place yesterday, at the corner of Madison street and Michigan avenue, in the presence of the board of fire commissioners and several aldermen and city officials. The competing engines were the Silsby engine, of Seneca Falls, N. Y.; the Gould of Newark, N. J.; the Latta, of Cincinnati; Clapp & Jones, of Hudson, N. Y. The first test was made with 500 feet of hose and one and one-fourth inch nozzle. The Silsby threw the stream 262 feet 7 inches, and the Latta 256 feet 8 inches. As these streams out-distanced those thrown by the other engines, no other measurements were taken. A test was then made against the wind, which also resulted in favor of the Silsby. The Silsby threw a one and one-half inch stream 194 feet 6 inches, and the Clapp & Jones 181 feet. The next test was with 250 feet of hose and two streams, with one and one-quarter inch nozzle on the Silsby and one and one-eighth inch nozzle on the Clapp & Jones. The result was highly favorable to both engines, being 211 feet 9 inches for the Silsby, and 234 for the Clapp & Jones. The difference in the size of the nozzles made the difference in the streams. A test was also made with 250 feet of hose with one and one-half inch nozzle, which resulted, Silsby 255 feet 7 inches, and Clapp & Jones 263 feet. In the play the Silsby stream averaged much better than the others, and its working was far more uniform and steady. The Gould en-

gine, of which so much has been said by interested parties, fell far behind in the trial, and the Latta engine broke down so as to be wholly incompetent, during the first test.

The greater power and solidity of the Silsby engine streams was most forcibly and thoroughly shown in the play directly against a strong wind blowing at the time. The Silsby engines have been in use here for about seventeen years, and there are now fourteen in use in the city. They have proven the most reliable and durable, costing less for repairs and being much easier on hose than the other makes of engines.

From the Chicago Inter-Ocean, Sept. 16th, 1874.

FIRE ENGINES ON TRIAL.—A trial of engines took place yesterday, at the corner of Madison street and Michigan avenue, in the presence of the board of fire commissioners and several aldermen and city officials. The competing engines were the Silsby engine, of Seneca Falls, N. Y.; the Gould, of Newark, N. J.; the Latta, of Cincinnati; the Clapp & Jones, of Hudson, N. Y. The first test was made with 500 feet of hose and one and one-fourth inch nozzle. The Silsby threw the stream 264 feet 7 inches, and the Latta 256 feet 8 inches. As these streams out-distanced those thrown by the other engines, no other measurements were taken. A test was then made against the wind, which also resulted in favor of the Silsby. The Silsby threw the stream 194 feet 6 inches, and the Clapp & Jones 181 feet. The next test was with 250 feet of hose and two streams, with a one and one-quarter inch nozzle on the Silsby, and a one and one-eighth inch nozzle on the Clapp & Jones. The result was highly favorable to both engines, being 211 feet 9 inches for the Silsby, and 234 for the Clapp & Jones. The difference in the size of the nozzles made the difference in the streams. A test was also made with 250 feet of hose with one and one-eighth inch nozzle, which resulted, Silsby 252 feet 7 inches, and Clapp & Jones 263 feet. In the play the Silsby stream averaged much better than the others, and its working was far more uniform and steady. The Gould engine, of which so much has been said by interested parties, fell far behind in the trial, and the Latta engine broke down so as to be wholly incompetent, during the first test.

TRIAL NO. 3.

From the Chicago Times, Sept. 23d, 1874.

STEAM FIRE ENGINE TEST.—The last steam fire engine trial of the competitive contest, took place yesterday, on the corner of Madison street and Michigan avenue. The different engines tested were

the Silsby, Gould and Clapp & Jones. The members of the board of police and the fire commissioners were present, and a large attendance of public men and citizens interested in the improvement of the fire department. The time of trial was five hours, and was chiefly for the benefit of the opponents of the Silsby engine; thus granting them an opportunity of recovering the laurels which had been lost in several previous trials. The first experiment was with five hundred feet of hose and one and one-quarter inch nozzle. During this first test, the *Gould machine broke down* and was withdrawn from further competition. *A similar fate befell the Clapp & Jones engine*, entailing a loss of half an hour's time.

In the next test this engine, which had been repaired, meanwhile, failed to work full time, the engineer having *drawn his fire from some unknown cause*. The chief fire marshal found fault with the engineer of the Clapp & Jones machine for carrying steam considerably above the limit fixed. This limit was 125 pounds, and the highest which the Silsby was found to carry was but 115 pounds, with an average of 81½. On the contrary, the piston engines averaged about forty pounds higher. The Silsby has during the past few weeks sustained successfully five or six tests against different kinds of piston engines, winning each with additional prestige; while its contestants have been compelled in each case to withdraw from the trial. This exhibit will doubtless prove thoroughly conclusive of the superior merits of the rotary over the piston fire engines; and as the Silsby has distanced all competitors, and, during an active service in this city extending over a period of seventeen years, has proved itself the most reliable, economical and efficient engine, there is scarcely any doubt that the city authorities will recognize its merits in preference to all others, especially as there are now fourteen of them in use here.

From the Chicago Tribune, Sept. 23d, 1874.

THE LAST FIRE ENGINE TRIAL.—The last of the many steam fire engine trials which have been attracting the close attention of the fire department of Chicago, took place yesterday morning, at the corner of Michigan avenue and Madison street. The contestants on this occasion were the Silsby, Gould and Clapp & Jones engines, and the trial, which was to last five hours, was to give the last-named engines a chance to recover from the Silsby the laurels lost in previous encounters.

The first test was with 500 feet of hose, and 1½ inch nozzles. In this trial the Gould again broke down, or failed in some way, and was withdrawn from further competition. The Clapp & Jones also, at the end of the first test, drew its fire, owing to some trouble, and only worked about half the time of the second test.

The engineer of the Clapp & Jones was found by the chief fire marshal to be carrying steam considerably above the limit fixed for all, and was reprimanded. The limit of steam was put at 125 pounds, and the highest steam carried on the Silsby was 115 pounds, and the average pressure $83\frac{1}{2}$ pounds, while the piston engines averaged about 40 pounds higher.

During the past six weeks the Silsby engine has had several trials against different makes of piston engines, and has not once failed or broken down in any way. On the contrary, the Amoskeag has twice failed, the Gould two or three times, the Ahrens & Co. once, the Clapp & Jones once, and also drew their fire once. The day was windy, and not very favorable for throwing fine streams, and there seemed to be a strong disposition to *allow spray to be measured for the piston engines to make a show on paper*. The throwing was as follows:

With 500 feet of hose and $1\frac{1}{4}$ inch nozzles: Silsby 261 feet 10 inches, Gould 249 feet, Clapp & Jones 273 feet.

With 500 feet of hose and $1\frac{1}{4}$ inch nozzles: Silsby 191 feet 4 inches, Clapp & Jones 181 feet.

With 250 feet of hose and $1\frac{1}{4}$ inch nozzles: Silsby 228 feet 7 inches, Clapp & Jones 228 feet 7 inches.

With two leads of hose, 250 feet each, $1\frac{1}{4}$ inch nozzles on the Clapp & Jones, and $1\frac{1}{4}$ and $1\frac{3}{8}$ on the Silsby, the throwing was as follows: Silsby 195 feet 5 inches, Clapp & Jones 216 feet 9 inches.

The larger nozzles were put on the Silsby by mistake by one of the marshals or judges for the last test, and more than made up for the difference in the distance thrown. In throwing a perpendicular stream, the *Silsby was handsomely ahead*, as spray does not count very well in throwing straight up. The perpendicular stream was a splendid exhibition of the power of the rotary engine.

The general impression was that this trial settled decisively the question of Rotary versus Piston fire engines for some time to come, since the Silsby has come out ahead in repeated trials with four different makes, and is believed to have proved in actual service here the most economical, durable and trustworthy.

From the Chicago Journal, Sept. 23, 1874.

FIRE ENGINE TEST.—A competitive trial of steam fire engines took place yesterday morning at the corner of Michigan avenue and Madison street, before a large assemblage of citizens and several city officials. The trial previous to this took place about a week since, and resulted in favor of the Silsby engine. The test of yesterday consumed the entire day. The competing engines were the Clapp & Jones, the Gould, and the Silsby. The first trial was made with 500 feet of hose, and $1\frac{1}{4}$ inch nozzles. In this test the machinery of the

Gould engine got out of order, and the engine was withdrawn. The Clapp & Jones engine also broke down, and lost half an hour for repairs, being compelled to draw its fire. The limit of steam was 125 pounds. The Silsby carried 115 pounds at the highest pressure, and averaged about 90 pounds, while the other engines averaged about 40 pounds higher. The result of the test was as follows: With 500 feet of hose, $1\frac{1}{4}$ inch nozzles—Silsby 261 feet 10 inches; Gould 249 feet, and Clapp & Jones 263 feet. With 500 feet of hose, $1\frac{1}{4}$ inch nozzles—Silsby 191 feet 3 inches; Clapp & Jones 181 feet. With 250 feet of hose, $1\frac{1}{4}$ inch nozzles—Silsby 228 feet 7 inches; Clapp & Jones 228 feet 7 inches. With two leads of hose, 250 feet each, $1\frac{1}{4}$ inch nozzles on the Clapp & Jones and $1\frac{1}{4}$ inch and $1\frac{3}{8}$ inch nozzles on the Silsby—the Silsby threw 195 feet 5 inches and the Clapp & Jones 216 feet 9 inches. The difference in the size of the nozzles in the last test more than made up the difference in the distance thrown. A perpendicular stream was then tried, which resulted in favor of the Silsby.

From the Chicago Inter-Ocean, Sept. 23, 1874.

STEAM FIRE ENGINE TRIAL.—A final test of fire engines took place yesterday at the corner of Michigan avenue and Madison street, consuming nearly the entire day, resulting, as before, in showing the superiority of the Silsby engine for actual hard work. The competitors were the Silsby, Gould, and Clapp & Jones. The Clapp & Jones broke down during the first test, and lost about half an hour for repairs, when they again entered the field. The Gould also became unfit for service from some cause, and was withdrawn from the contest. The Clapp & Jones engine, in the first test, had its fire drawn for some unexplained reason, and only worked a few minutes of the half hour. The Silsby worked along steadily all through the trial, except during the first test, when the hose kept bursting at less than full pressure. The steam pressure was limited to 125 pounds, and, while the piston engines used fully up to the limit, the Silsby averaged less than 90 pounds.

The tests were as follows: Three hours, with 500 feet of hose, $1\frac{1}{4}$ inch nozzles—Silsby 261 feet 10 inches; Gould (withdrawn) 249 feet; Clapp & Jones 273 feet. Half an hour with 400 feet of hose, $1\frac{1}{4}$ inch nozzles—Silsby 191 feet 3 inches; Clapp & Jones 181 feet. Half an hour with 250 feet of hose, $1\frac{1}{4}$ inch nozzles—Silsby 228 feet 7 inches; Clapp & Jones 228 feet 7 inches. Half an hour with two streams, 250 feet of hose $1\frac{1}{4}$ inch nozzles on the Clapp & Jones, and $1\frac{1}{4}$ and $1\frac{3}{8}$ inch nozzles on the Silsby; the throwing was as follows: Silsby 195 feet 5 inches; Clapp & Jones 216 feet 9 inches.

The Silsby throwing the largest stream in the last test accounts for the difference in the distance thrown. A perpendicular stream

was thrown during the trial, which resulted largely in favor of the Silsby. During the trials here for the past few weeks, all the machines tested have broken down one or more times except the Silsby, showing it to be the most reliable fire engine. We think this series of tests has settled the question of which engine is the best for the city to buy, there being fourteen of that kind used in the city, and they have proved the most durable and economical in the way of repairs here during many years of service.

From the Monroe (Mich.) Commercial, July 22, 1875.

REPORT OF COMMITTEE ON STEAM FIRE ENGINES. PURCHASE OF THE SILSBY MACHINE.

To the Honorable Mayor and Common Council of the City of Monroe, Mich. :—

GENTLEMEN :—We, the Committee appointed by you to attend the trial of Fire Steamers on the 13th inst., to try, test and report, beg to say that we have performed the duty assigned us to the best of our ability, without prejudice. At the wharf there were two new steamers—one of Clapp & Jones, No. 2, and one of Silsby, No. 3, together with our own, a Clapp & Jones, No. 3.

At the word of our Chief Engineer, fire was made in each, with the understanding that the test would be which steamer would throw the first stream of water through 150 feet of hose. We find that the Silsby was the first, in seven and one-half minutes, and the Clapp & Jones in nine minutes.

The direction of the Committee was that each steamer should be limited to 80 pounds of steam, and that the Silsby conformed to that order; but that the Clapp & Jones exceeded that by ten or twenty pounds.

The Silsby threw a smoother and better stream, and from twenty to thirty feet farther, and that we were satisfied that the Silsby machine exceeded the Clapp & Jones in that test.

After about two hours' trial, the engines were taken to the upper bridge, when the Clapp & Jones threw one stream through a $1\frac{1}{2}$ inch nozzle and 200 feet of hose, the distance of 186 feet. It then attached another hose with one inch nozzle, and threw both streams 155 feet.

The Silsby then started with three streams, with $\frac{3}{4}$ inch nozzles, and threw 159 feet. Then one stream was taken off, leaving two with one inch nozzles, and threw 192 feet each; and then finished up with one stream, with $1\frac{1}{4}$ inch nozzle, and threw 207 feet; and that the

working of the Silsby engine was very satisfactory. The Clapp & Jones machine did not meet with our expectations, and we recommend the Council to reject the same.

The agent of the Silsby machine volunteered to the committee to try his machine again, on the 14th inst., when they worked it about two hours, with about 60 pounds of steam, throwing water with one and then two streams, that were very satisfactory to the committee.

F. WALLDORF,
N. N. KENDAL,
CONSTANT LUCE,
S. M. BARTLETT,
JOHN ALEXANDER.

Which said report was accepted and adopted by the Common Council of the said city, in special session, July 15th, 1875, and the Silsby steamer was purchased by a unanimous vote of the Council, at the same meeting.

In witness whereof, I hereby certify my official signature, this 15th day of July, 1875, at the City of Monroe.

JOHN DAVIS, Clerk of said City.

In the trials above noted, there were three features in which the Silsby machine appeared to be especially superior, and in which respects it attracted very general attention. We refer to the extreme steadiness of its operation, the small quantity of steam with which it will do its work, and its ease on hose. Its superiority in these respects was very manifest. While in operation the engine stood perfectly still, requiring no blocking of the wheels, and whether carrying fifty or a hundred pounds of steam, running fast or slow, it appeared to make no perceptible difference in this respect. With the piston engines, the more steam carried and the more work required, the greater is the vibration of the machine, and the strain upon the hose and the vibration thereof is correspondingly increased. With the rotary engine, the hose lays perfectly still, with no vibration whatever, consequently no wear by friction upon the pavement, and apparently nothing like the strain upon the hose that there seems to be with the piston engine. There must of necessity be much less liability to burst, and consequently very great saving in hose. There is another advantage in the fact that one man can hold and handle the pipe of a rotary machine, while it requires two or three to manage the pipe of a piston machine. In the trial of the Silsby machine on the 14th, mentioned in the committee's report, the Silsby carried on 50 to 60 pounds of steam, and her work during the trial, throwing one and two streams of water, proved most satisfactory. At the previous trial her capacity to do a much larger amount of work, with less steam, was quite manifest, and from numerous reports of trials of the Silsby engines with those of other makers, we find a marked difference in this respect in

favor of the Silsby. The engine just purchased is finished in much finer style than the Clapp & Jones, and having the above facts so strongly in its favor, it seems to us that the Council has done wisely in making the purchase.

From the Danville (Ill.) Commercial.

THE SILSBY ENGINE TRIUMPHANT.

DANSVILLE ADOPTS THE VICTOR.

During the past week the chiefest of topics has been fire engines. The great wrangle over hard vs. soft money was forgotten, and all thought of the approaching county election was absorbed in the excitement of the contest between the Silsby and Clapp & Jones engines, which finally, after a contest of four days, unnecessarily prolonged, resulted in a complete triumph for the Silsby. This engine, from what we saw and could comprehend, showed itself superior in every test from the throwing of water to the anatomical examination by machinists.

On Friday evening the excitement was at its highest pitch. The engines were placed at separate cisterns, and were to pump into each other's cistern until it could be demonstrated which could empty its own cistern in the shortest time, or fill up its competitor's cistern, if it could be done. At the given signal the Silsby began to sound its "long roll," and the Clapp & Jones to puff like a locomotive on an up grade. In less than ten minutes time the Silsby had lowered the water in her own cistern and had filled the cistern of the Clapp & Jones to overflowing. At this juncture the Clapp & Jones sounded "down brakes," and the test trial ended amid loud cheering by the excited throng.

After the trial, the contest was carried into the council chamber. A petition was presented, signed by a large number of leading citizens, asking for the appointment of five competent engineers and machinists, to examine the respective engines and to report their opinion as to their merits. After some sparring between the agents of the fire engines, and it was shown that all had been complied with in the provisions of the test, and that the Silsby engine had come out winner, the city council, after a warm debate, granted the petition.

The mayor nominated a committee of engineers and machinists, and the council confirmed them. The committeemen were Mr. de Clerq, foreman of the C., D. & V. shops, H. F. Frisbie, L. C. Hovey, Mr. Hilburn, and Valentine Wining.

A special meeting was held by the city council on Saturday evening, to consider the reports of the Committee on Fire and Water and

the committee of machinists examining the machines, and to purchase the engine recommended by the said committees.

REPORT OF COMMITTEE ON FIRE AND WATER.

The following is the report from the Committee on Fire and Water, to wit:

DANVILLE, ILL., Oct. 29, 1875.

To the Mayor and Common Council of the City of Danville :

We, the Committee on Fire and Water, respectfully report, that in the late trial of fire engines, had under the resolution of the city council of date September 30, 1875, in accordance with the rules established for said test and trial, that the Silsby engine was the winner in the majority of several tests, and that the said engine is fully adapted to our wants, and is the best engine; and we would therefore recommend the purchase of the Silsby engine for the use of the city, as by proposal furnished before the test.

Respectfully submitted,

W. H. TAYLOR,

A. CAREY,

Committee on Fire and Water.

THE MECHANICS' REPORT.

The committee of Mechanics submitted their report, as follows, to wit:

DANVILLE, ILL., Oct 30, 1875.

We, as a committee of three, appointed by the honorable board of councilmen, October 29th, 1875, to examine the Silsby and Clapp & Jones fire engines now in Danville, Ill., send our report after making a fair and impartial examination of each, to the mayor and council of Danville, Ill. Said committee report in favor of "Silsby," giving reasons for preference as follows:

OBJECTIONS TO JONES & CLAPP ENGINE.

- 1st. Inlet ports too small to cylinder.
- 2d. Exhaust not sufficient.
- 3d. Steam pipe not large enough in diameter.
- 4th. Circular valve not practical for fire engine.
- 5th. Engine easy to get on centres, and balance wheels not large enough, and if made larger there would be more motion to machine.
- 6th. The attachment of cylinder to boiler (and other attachments to boiler, such as braces, &c.,) we do not consider practicable on account of the engine jerking, and not being quiet while working.
- 7th. Object to two piston rods, for the complication of the same.
- 8th. Packing around rods liable to get loose and admit air.
- 9th. The brass chamber of pump expands in centre on account of tremendous reversion of plunger, giving air to piston.

10th. Rubber valves liable to rot, also to lose their elasticity and drop away from chamber cylinder, causing the pump to be primed before operating at a fire; also the liability of sawdust and sand collecting under the valves, causing a stop to the engine.

11th. The engine is not quiet, therefore hard on hose.

12th. There is no leveling screw in order to level up the engine provided the engine had to set on a sidehill.

13th. Seat unhandy for driver.

14th. No dump grate.

15th. Too much pulsation in hose, and not an even stream.

16th. Wooden wheels, easy to take fire from the ashes and cinders dropping from the grates.

17th. No donkey pump or tank.

18th. Consider the engine too complicated and requiring too many repairs.

THE SILSBY ENGINE.

Of the Silsby engine, we think the rotary the simplest; also the quickest; throws the steadiest stream; is easier on hose; will work the longest without repairing; *and is the most economical engine for fire purposes*; also, the workmanship is second to none.

We, this 30th day of October, 1875, subscribe our names.

H. F. FRISBIE,

Of Frisbie, Logue & Co., Engine M'fr's.

V. WINING,

Foreman C., D. & V. shops.

A. H. DE CLERQ,

Master Mechanic C., D. & V. shops.

Upon the motion of ald. Taylor, the report of the committee of mechanics was adopted, and ald. Long's motion for the reception and adoption of the report of the Committee on Fire and Water was likewise carried.

Ald. Spoor offered a motion that the city purchase the Silsby fire steamer; that the clerk be instructed to draw a warrant for \$2,000 on the treasurer in favor of the manufacturers of that machine, and that the mayor issue the city's bond for the remainder due, to become due in eight months from date, and to bear interest at the rate of eight per cent. per annum. The motion was carried.

And thus the contest ended, and Danville can now boast of as strong a fire department as any city in the United States. Our yoke of Silsby engines, we think, will be equal to any emergency. The old Silsby is a splendid working machine, and is to-day, after four years use, in which it has saved thousands of dollars worth of property, as good as new. The boys who have charge of her would not exchange

her for any other engine in the world—even if it was a Silsby. She has been tested under the most trying circumstances, and has always proved equal to the occasion.

From the Saturday (Kent, O.,) Bulletin, Oct. 30th, 1875.

A SEVERE TRIAL OF STEAM FIRE ENGINES.

The Silsby and Clapp & Jones in the Hands of an Earnest Committee

ANOTHER VICTORY FOR THE SILSBY.

Eventful periods in the history of our town have grown in magnitude and importance from year to year, until now we are to be brought into notice in almost every town of any importance in the Union. This prominence comes from one of the longest and severest tests of Steam Fire Engines that has ever been given in any place. For three days last week our citizens were in a perfect fever of excitement, and hundreds dropped everything else and joined the crowd assembled to witness the contest between the Silsby and Clapp & Jones machines. The contest was the more exciting on account of the high reputation both machines have gained, and in the choice of machines the matter is settled only by a careful summary of the advantages.

Some two years ago the Council undertook to provide facilities for extinguishing fires, and with the best intentions, and, as they believed, to the best interests of the citizens, purchased a Babcock Chemical Engine. This proved a total failure, but it had one redeeming point—it opened the eyes of the “city dads.” Consequently, when the matter of purchasing a regular fire engine came up a few months ago, they took warning from the past, and agreeing that cautiousness was wisdom, acted accordingly. It was plain to be seen that our town demanded something better than a Babcock Soda Fountain, and steps were taken to attain the end. Accordingly propositions were made to two of the leading Fire Engine manufacturing companies, (namely, the Silsby and Clapp & Jones,) to give our citizens the usual demonstrations of merit, promising to purchase the one proving itself superior. The preliminaries were all satisfactorily arranged, and the day of trial set for Wednesday, October 20th. The day came, but no contest, although both gave exhibitions. Finally, the slight differences preventing the first day's programme from being filled were settled, and on Thursday morning both steamers were taken to the upper bridge for trial. At this point the machines would be required to lift water about twenty feet perpendicular—a very important advantage in

this place, as the machine capable of doing this would save the cost of constructing four tramroads—about one-half the cost of the engine.

The Silsby was placed in position and put in readiness for working, but the agent for the Clapp & Jones declined working at this point on account of the heavy draft. Mr. Silsby here offered to place the suction hose of his engine at exactly the same depth, and upon actual refusal to make the test in this position, both engines were moved down to the platform at Main street bridge, where water is reached with about fourteen feet of suction hose. Everything being put in readiness, each engine was supplied with a double line of hose, 300 feet in length, and $\frac{1}{4}$ inch nozzles. The fires were lighted at precisely one o'clock, and they entered into a five hours' test—steam being limited to 70 pounds. Steam was raised as follows:

| SILSBY. | | CLAPP & JONES. | |
|----------------|-------------------|----------------|-------------------|
| STEAM. | TIME. | STEAM. | TIME. |
| 10 pounds..... | 4 min. | 8 pounds..... | 4 min. |
| 11 " | 4 $\frac{1}{2}$ " | 10 " | 4 $\frac{1}{2}$ " |
| 12 " | 5 " | 12 " | 5 $\frac{1}{2}$ " |
| 15 " | 5 $\frac{1}{2}$ " | 19 " | 6 " |
| 25 " | 6 " | 20 " | 7 " |
| 30 " | 6 $\frac{1}{2}$ " | 25 " | 8 " |
| 50 " | 8 " | 60 " | 13 " |
| 70 " | 8 $\frac{1}{2}$ " | 70 " | 15 " |

In this test the Silsby had water at the nozzle, and throwing a stream 150 before the Clapp & Jones had started—being about nine minutes in advance.

After playing four hours both machines were stopped by order of the Committee, and following we give the result of the contest:

| SILSBY. | CLAPP & JONES. |
|---|---|
| Extreme distance . 191 ft. 10 in. | Extreme distance . 167 ft. 3 in. |
| Average distance . 185 ft. 10 in. | Average distance . 161 ft. 3 in. |
| Average steam pressure, 67 $\frac{1}{2}$ lbs. | Average steam pressure, 77 $\frac{1}{2}$ lbs. |

Messrs. Glass & Howden taking the steam pressure, and Day, Marshall and Rhoades measuring the distance of water thrown.

FRIDAY MORNING.

The Committee, determined on a thorough and satisfactory trial, caused the engines to be placed on the platform, side by side, again Friday morning. In this trial 1,000 feet of hose, with 1 $\frac{1}{4}$ inch nozzle, was attached to each engine and led to the top of west Main street hill. The test to be for four hours, the engines to be worked with 100 lbs.

of steam and open throttles, and the average distance of the streams thrown to be the winning point. At 8:50 the fires were lighted, and steam raised as follows:

| SILSBY. | | CLAPP & JONES. | |
|---------------|--------|----------------|--------|
| STEAM. | TIME. | STEAM. | TIME. |
| 5 pounds..... | 3 min. | 5 pounds..... | 5 min. |
| 9 " | 4 " | 15 " | 8 " |
| 16 " | 5 " | 20 " | 10 " |
| 20 " | 5½ " | 25 " | 14 " |
| 30 " | 6 " | 30 " | 15 " |
| 35 " | 7 " | 45 " | 16 " |
| 40 " | 7½ " | | |
| 51 " | 8 " | | |

In this test, as before, the Silsby was throwing water about *twelve* minutes before the Clapp & Jones had got up steam.

The city having received, in anticipation of this event, a lot of new hose from the Akron Rubber Co., a portion of it was used in this test.

Shortly after the machines commenced playing, the Clapp & Jones engine pulled one of the couplings off from the hose, and was obliged to shut down and put in another section. *After playing about two hours, a length of hose on the Clapp & Jones machine became worn through and thus destroyed.* This destruction was occasioned by the vibration of the engine—the pumps jerking it back and forth on the ground until it was worn out.

At the end of three hours the Committee allowed both engines to stop, the Silsby having run the entire time without stoppage, breakage, or any interruption whatever. No measurements were taken of the average distance, but it was acknowledged that the Clapp & Jones held its stream in advance.

The highest steam pressure was that of the piston engine, being 140 pounds, with an average of 125 pounds. On the Silsby 120 pounds was the highest point reached, with an average of 105 pounds.

NOON.

The Committee now adjourned for dinner. At two o'clock the machines were taken to the bank of the river, near the water's edge, and 1,000 feet of hose, with 1½ inch nozzles, attached. This test was for one hour, 100 pounds of steam, and average distance of water thrown to be measured and accepted as a winning point. *After playing about thirty minutes, the Clapp & Jones was again obliged to stop and take out a section of hose, worn through by the ever backward and forward motion of the engine—this being the second time it had hugged our sand rocks to grief.*

In the last test between the two engines, through 1,000 feet of hose, the Committee decided that there was no difference in the streams when playing horizontally, but during the last fifteen minutes with perpendicular streams the Clapp & Jones was admitted to be slightly ahead up to the last five minutes, when the Silsby had the highest stream by ten or fifteen feet.

TESTS COMPLETED.

At the conclusion of this test, the fire was drawn from the Clapp & Jones boiler, and retirement considered in order.

The Silsby, however, had not shown its fullest capacity, and accordingly went in for an exhibition of its own. The leading feat of the show being then and there performed—that of throwing three streams, and it was done, too, with satisfaction to the Committee and the spectators generally.

GREATEST FEAT OF ALL.

The Silsby then moved to the “front”—to the east end of the iron bridge, where it is about twenty feet down to the water. In this position it gave its last exhibition of its immense power, and fully demonstrated that it could draw water at this great distance and do good fire duty.

The Silsby engine concluded its work at the bridge, and both engines were housed.

The Council held a special meeting in the evening to receive the report of the Committee, which unanimously recommended the purchase of the Silsby engine. The Council accepted and adopted the report of this body without a dissenting vote.

JOLLIFICATION.

As soon as the result became known, a large number of our citizens waited upon Mr. Horace Silsby, at the Continental, and congratulated him on the success of his engine during the trial, and expressed their hearty approval of the action of the Council in the purchase of the engine. Three cheers were given for Mr. Silsby, Col. I. H. Marrow, agent of the company, engineer Teller, (commonly known as “old reliable,”) and fireman Wicks.

Mr. J. Shilling, Chief Engineer of the Troy (O.) fire department, responded in behalf of the Silsby company, thanking the citizens of Kent for their kind and courteous attention while here, and concluded by expressing the belief that our citizens would never have occasion to regret the purchase of the Silsby. He has had charge of one dur-

ing the past seven years, and so well pleased with the working of the machine are the citizens of his city that they have just purchased another.

WHAT THE PEOPLE SAY.

KENT, OHIO, October 23, 1875.

We, the undersigned, citizens, engineers and mechanics, having witnessed a three days' test trial made in this town between a fourth size Silsby and a fourth size Clapp & Jones Steam Fire Engine, have no hesitancy in saying, after witnessing said test, that the Silsby Steam Fire Engine is by far the best steamer for what it is built—namely, a *Steam Fire Engine*. Having demonstrated its great superiority in simplicity of construction, workmanship and finish, also its power in lifting water from our highest bridges, doing steady and continuous fire service through long lines of hose, with one, two and three streams, without once shutting down, as was not the case with the Piston Engine, it being obliged to shut down several times during the test, caused by the disarrangement of the *rubber pump valves*. Also in the wearing out of its leading hose, caused by the constant vibrations of the machine, and the jerking motions back and forth of the hose on the ground. We consider the low pressure of steam with which the Silsby Engine does its work as a great point of superiority over the Piston Machine. We highly endorse the action of the Committee in recommending the purchase of the Silsby Engine, and the action of the Council in confirming the same, thus giving us a reliable Fire Engine.

G. S. Howden, Engineer in charge of shops of A. & G. W. R. R.
James Glass, Engineer.

John T. Pinkney, Engineer.

A. J. Quick, Engineer.

M. V. Green, Engineer.

George B. Williamson, Engineer.

Robert Huntington, Engineer.

John Lee, Engineer.

N. Greeg, Engineer.

George Felsinger, Engineer.

W. H. Van Han, Machinist.

R. V. Smith, Master Car Builder, A. & G. W. Ry.

Robert McGhee, Foreman, Foundry.

A. G. Richards, Car Shops A. & G. Ry.

D. M. Marshall, Chief Fire Warden.

Kent, Stauffer & Hathaway.

Whitmore & Stratton.

MERCHANTS AND PROMINENT CITIZENS.

| | | |
|-------------------|-----------------|------------------|
| W. R. Carver, | John F. Taylor, | John Cross, |
| Geo. L. Stouffer, | G. A. Case, | A. L. Ewell, |
| Geo. Burdick, | J. Hawk, | Wm. Hazle, |
| J. H. Whitehead, | Geo. Weining, | C. F. Brewster, |
| J. O. Judd, | Israel Myers, | Frank Adams, |
| E. Wood, | Daniel Murphy, | N. B. Rynard, |
| W. H. Cole, | John Miles, | R. A. Thompson, |
| Geo. F. Clark, | A. B. Young, | Fred. Foote, |
| Jacob Meines, | S. H. Chapman, | Fred. B. Allen, |
| John H. Thomas, | Chas. Adams, | Dr. E. W. Clark, |
| H. N. Nash, | F. L. Allen, | D. C. Russell, |
| Spencer Husted, | A. M. Chase, | J. F. Fuller, |
| I. W. Armstrong, | H. Geiger, | L. D. Prouty, |
| J. Kern, | J. S. Sweeney, | John Reeves, |
| F. J. Furguson, | Wm. Burdick, | R. Smith, |
| Marvin Kent, | Henry Morris, | W. L. Barber, |
| Frank W. Cone, | Ezra Fowler, | O. H. Barton, |
| J. H. Hart, | Peter Arighe, | L. Roberts, |
| Hubbell & Hutton, | Wm. Bassett, | J. W. Patton. |
| G. W. Wood, | | |

From the Watertown, (Wis.,) Democrat, June 8th, 1876.

THE SILSBY VICTORIOUS.

A Committee of Machinists Report that the Silsby Engine is the one to Buy.

The following detailed report of the Committee of Examiners and Engineers was adopted without a dissenting voice, the committee concurring that the Silsby Engine proved to be the most reliable, and that her work during the great trial on Monday and Tuesday, May 29th and 30th, was the most satisfactory throughout. This report not only expresses the decision of the experts entrusted with the responsible duties of determining the merits of the best engine, but it also expresses the unbiased sentiments of a majority of our citizens. The Silsby proved superior in every respect to her antagonist, and we are pleased to announce that so acceptable and desirable an engine has been secured to the city.

WATERTOWN, WIS., June 3, 1876.

To the Board of Street Commissioners of the City of Watertown :

Your Committee appointed to witness and report on the relative

merits and working of the Ahrens and Silsby Steam Fire Engines on a test made for your benefit, beg leave to report in detail:

Test No. 1.—Ahrens 100 feet 6:25; Silsby 100 feet 7:11.

Test No. 2.—Ahrens 150 feet 7:35; Silsby 150 feet 7:48.

Test No. 3.—Ahrens 200 feet 11:35; Silsby 200 feet 11:55.

Test No. 4.—Not performed. Not performed.

Test No. 5.—At this juncture *the Ahrens became disabled by breaking of valves, and was taken from the ground for repairs.* Test performed by the Silsby.

Test No. 6.—Not performed.

Test No. 7.—Ahrens ahead.

Test No. 8.—Ahrens ahead.

Test No. 9.—The engines were moved to Main street Bridge, and dropped the suction 17 feet to water; *the Ahrens engine failed to take water, and did not perform, and was withdrawn for examination, when it was found that the valves had again given out.* Silsby performed the test. Silsby ahead.

Test No. 10.—Performed by the Silsby, and *not* by the Ahrens, for reasons stated above.

Test No. 11.—Draw.

Test No. 12.—Draw.

Test No. 13.—Silsby ahead.

Test No. 14.—Silsby ahead.

Test No. 15.—Silsby ahead.

Test No. 16.—Silsby ahead.

Test No. 17.—No test.

Test No. 18.—No test.

Test No. 19.—Ahrens ahead.

Test No. 20.—Silsby ahead.

At this time the engines were taken to their houses for examination, when it was found that *the valves of the Ahrens engine had again given out and was disabled from further duty.* The Silsby was also examined and found to be *in perfect order.*

TUESDAY.

Test No. 21.—Not performed.

Test No. 22.—Ahrens steam pressure average 121 pounds. Ahrens water pressure average 190 pounds. Silsby steam pressure average 95 pounds. Silsby water pressure average 156 pounds.

Quality of material, both good.

Strength, Silsby ahead.

Workmanship, both good.

Steadiness while in operation, *Silsby ahead.*

Finish equal, except as to nickel plating, which renders the Silsby more easy to keep clean.

Handiness for service, Silsby ahead.

Moved, That the Committee express their opinion by ballot on the engine that has proved most satisfactory at the trial, and in their opinion the most desirable one to recommend to the city for purchase. The Silsby received the entire vote—seven in favor.

Moved, That this Committee recommend to the city *the purchase of the Silsby engine.* *Carried unanimously.*

J. SEONE,
J. H. SLEEPER,
J. B. BENNETT, ,
C. W. CHAPPELL,
H. B. QUICK,
CHARLES WOOD,
F. GHORES.

SUMMARY.

Drawn Tests—Nos. 11 and 12.

Not performed by either engine—Tests Nos. 4, 6, 17, 18 and 21.

WON BY THE AHRENS ENGINE.

Tests Nos. 1, 2, 3, 7, 8 and 19.

WON BY THE SILSBY ENGINE.

Tests Nos. 5, 9, 10, 13, 14, 15, 16, 20, 22 and 23.

Strength. Steadiness.

Lowest average steam and water pressure.

Finish. Handiness for service.

During the trial the Ahrens engine became completely disabled *three times*, and sent to Milwaukee, Chicago, Cincinnati and Janesville for valves, and destroyed three entire new sets.

TRIAL OF FOURTH CLASS SILSBY AND LA FRANCE ENGINES,

At Frederick, Md., Sept. 20th, 1876.

STEAM LIMITED TO ONE HUNDRED POUNDS.

The engine winning the most tests to be purchased.

Nothing shall be used in firing up but shavings, wood and coal.

Test No. 1.—Time of raising steam, and first water to nozzle.

Test No. 2.—First water 100 feet from nozzle.

Test No. 3.—First water 150 feet from nozzle.

Test No. 4.—First water 175 feet from nozzle.

Test No. 5.—First water 200 feet from nozzle.

The above tests to be done through 500 feet of hose and $1\frac{1}{2}$ inch nozzle.

Test No. 6.—Average distance two streams through 250 feet of hose each, $\frac{7}{8}$ inch nozzles, one hour's play.

Test No. 7.—Average distance three streams through 150 feet of hose each, $\frac{3}{4}$ inch nozzles.

Test No. 8.—Average distance four streams through 150 feet of hose each line, $\frac{3}{4}$ inch nozzles.

Test No. 9.—Vertical stream, 100 feet of hose, $1\frac{1}{2}$ inch nozzles, greatest height.

Test No. 10.—Greatest horizontal distance, 100 feet of hose, $1\frac{1}{2}$ nozzle.

Test No. 11.—Vertical height, two streams, $\frac{7}{8}$ inch nozzles.

Test No. 12.—Workmanship and finish of engine.

Test No. 13.—Ease on hose and durability and simplicity.

REPORT.

The Committee of the "Junior Fire Co." of Frederick, appointed to enquire into the relative merits of the different steam fire engines competing at the trial which took place on the 20th instant, report as follows:

The committee of mechanics invited to be present at the trial, while considering the La France to be a good engine, were decidedly of the opinion that the *workmanship and power of the Silsby engine were very much superior.*

At the trial the Silsby engine,

1st, Made the first steam.

2d, Threw the first water.

3d, First water at 100 feet.

4th, First water at 150 feet.

5th, First water at 175 feet.

6th, First water at 200 feet.

Each through 500 feet of hose, $1\frac{1}{2}$ inch nozzle.

7th, Through 250 feet of hose, two streams. La France gained this test with farthest throw of water, through two $\frac{7}{8}$ inch nozzles, while the Silsby used one $\frac{7}{8}$ inch nozzle and one inch nozzle.

8th, Through 150 feet of hose, three streams, $\frac{3}{4}$ inch nozzles, the Silsby threw the greatest distance.

9th, Through 100 feet of hose, four streams, $\frac{3}{4}$ inch nozzles, the Silsby gained greatest distance. (Not much difference, both throwing well.)

10th, Through 100 feet of hose, using $1\frac{1}{2}$ inch nozzle, perpendicular. Silsby threw the highest stream.

11th, Abandoned.

12th, Workmanship and finish of engine given to the Silsby as being superior.

13th, Ease on hose, from what we could observe, was in favor of the Silsby.

The throwing over the German Reformed church steeple not being laid down as a competitive test, it not being reported, but the company and citizens generally could see for themselves which had the greatest power.

ED. KOONTZ, President,
G. W. B. SHINER,
AL. AUBERT,
CHAS. W. MILLER,
GIDEON STALEY,

Committee of Junior Fire Company.

GIDEON BAULTZ,
McCLINTOCK YOUNG,
ALEC. BRENGLE,
JOHN H. ABBOTT,

Committee of Machinists. .

The Silsby engine purchased by a unanimous vote of the Committee.

I hereby certify that the above is a true copy of the original report.

ED. KOONTZ, Pres't Junior Fire Co.

FREDERICK, MD., Sept. 20, 1876.

From the Herkimer County News, Little Falls, June 8th, 1877.

THE AGONY OVER.

PISTON ENGINE VS. ROTARY.

THE SILSBY VICTORIOUS.

The long looked for trial of the relative merits of the Piston and Rotary Steam Fire Engines, took place yesterday, in the presence of the president of the village, the trustees and a large number of citizens from this village and adjoining towns.

Three engines entered the contest: the Button, the Silsby, and the La France.

THE BUTTON ENGINE

Is too well known in this vicinity to need any description, as we have had two of them in our village for several years. The trial engine

brought here by Mr. Button is somewhat larger than those we now have in use, and weighed, when drawn on the scales, 4,910 pounds. In appearance it is decidedly the plainest of the three engines, but her friends claimed that what she lacked in looks she would make up in execution.

THE SILSBY ENGINE

Is decidedly the finest looking of the three engines, and was built at the celebrated Island Works, Seneca Falls. She shows thorough workmanship, and all the metal parts are heavily nickel-plated; the Silsby Company being the only steam fire engine builders having shops for doing this work on their own premises. The boiler is built of steel, which makes it very strong and durable. The circulation of water in the flues is also natural and constant, and is not a forced or artificial circulation.

Her number is 565, which shows conclusively that Mr. Silsby has been very fortunate in the sale of his engines, and that if they are such miserable failures as some would have us believe, people who are interested take a long time to find it out. When drawn on the scales she weighed 5,070 pounds, a little heavier than either of the others. It is but fair, however, to say that the slight difference in weight is claimed to be due to the use of iron instead of wooden wheels, but that if the engine is purchased, should the authorities wish, the company will supply her with wooden wheels which will make her weight lighter, although they recommend the iron wheels as being far more durable.

THE LA FRANCE ENGINE

Is a very fine piece of machinery, and was manufactured at the La France works, Elmira. She is a rotary as well as the Silsby. Her makers claim several advantages over the other. Whether they are advantages or disadvantages, we are not able to say. Her weight is 4,860 pounds.

THE TRIAL.

After weighing the engines, each was taken to the upper lock, where the tests were to be commenced. The following are a list of the tests laid down by the board of trustees at the commencement:

Regulations and list of tests adopted by the Board of Trustees of the village of Little Falls, governing the steam fire engine trial held on Thursday, June 7th, 1877:

Each engine shall be weighed without water in the boiler, after which water shall be put in each boiler under the direction of the committee. The engines are required to be on the ground, and in position, pumps not primed, at 8 o'clock A. M., when coal and kindling will be furnished, and the fires started simultaneously. Each engine

will play steadily for four hours, through 300 feet of hose, with 1½ inch nozzles, steam limited to 70 pounds, steam and water pressure to be taken every ten minutes, steadiness of stream and distance maintained to be considered. Recess of one hour and a-half for dinner, engines to be left on the ground and fires drawn. At 1:30 P. M. teams will be attached to the engines and they will be drawn rapidly to Eastern square, passing through Second and Main streets, when fires will again be lighted simultaneously, each engine playing through 250 feet of hose, 1½ inch nozzle, steam limited to 70 pounds. The following were the tests upon the park:

1st. First water through nozzle.

2d. First water thrown fifty feet from nozzle.

3d. First water thrown one hundred feet from nozzle.

4th. First water thrown one hundred and fifty feet from nozzle.

5th. First water thrown two hundred feet from nozzle.

6th. The average distance for one hour, 500 feet of hose, 1½ inch nozzle, steam limited to 70 pounds.

7th. The average distance for thirty minutes, through two lines of hose, 250 feet each, one inch nozzles.

8th. Each engine will play separately through 1,000 feet of hose, 1½ inch nozzles, steam limited to 106 pounds.

Morning trial took place at upper lock on canal.

After everything was in readiness, Trustee Middlebrooks gave the word, and the firemen of each engine kindled the fire under their respective boilers. Three hundred feet of hose had been stretched from each engine, and their nozzles laid side by side. In precisely six and a-half minutes water was forced from the nozzle of the Silsby, and before water made its appearance from either of the others, the Silsby was throwing fully 75 to 100 feet. The Button engine was the next to show water, the time being eight minutes and ten seconds, but she stopped almost immediately for a few seconds, and began business but a trifle before the La France, that followed in eight minutes and fifty seconds. The engines then commenced business in earnest, with their steam gauges limited to seventy pounds. After running for less than one hour, the Button engine commenced to show one of its main defects, viz: her hard usage of hose. *The length nearest the engine commenced breaking in two or three places, apparently from rubbing against the rough stones, caused by the vibration of the engine. Soon after, the next length commenced to show grief, and the engine had to be shut down to have the damaged lengths replaced by new ones. Here was one hundred feet of hose, costing at least one hundred dollars, badly damaged.* Any person present could not fail to notice how steady both rotaries remained while working, and no perceptible movement could be seen in the hose attached to them.

After running awhile longer, the Button engine had to be stopped,

and it was discovered that the head of the pump was badly injured, so much so as to prevent her from doing any more work. The remainder of the day the trial was entirely between the La France and Silsby engines, which continued on the test until a little after twelve o'clock, when they were stopped and the crowd adjourned for dinner. The La France made a very fine exhibition in this test, but her average was considerably below that of the Silsby.

AFTERNOON TESTS.

In the afternoon both engines were taken to Eastern Square, where work was again commenced. The first test was which engine would first throw water through 250 feet of hose, with $1\frac{1}{4}$ inch nozzles, the steam pressure not to be over 70 pounds—50 feet, 100 feet, 150 feet, and 200 feet. The Silsby again came out ahead, throwing water through her hose in $4\frac{1}{4}$ minutes, and before water appeared at the nozzle of the La France her antagonist had sent her stream to the 150 feet mark. Soon after the Silsby crept up to the 200 feet mark, and then shot several jets fully twenty-five feet over the stake, while the La France failed to reach the two hundred foot mark at any time. In this test the Silsby threw fully sixty feet further than the La France.

The next test was with 500 feet of hose, $1\frac{1}{4}$ inch nozzles, steam limited to 90 pounds. In this test the Silsby threw fully fifteen to twenty feet further than her plucky rival.

The next and last test was for each engine to throw two streams through 250 feet of hose, with inch nozzles, steam pressure limited to 110 pounds. In this test, as in all the others, the Silsby was victorious, throwing her water fully fifty feet further than the La France engine. As it was getting late, the thousand feet test was dispensed with, although there is no doubt that it would have been won by the Silsby.

Without prejudice we must say, that after looking at the working of both engines during the day, the Silsby is a far better engine than the La France. The principal defect and fault of the latter appeared to be her inability to keep up her steam pressure to the amount required. The Silsby, on the contrary, is able to keep up her steam right along, and when running at 70 pounds pressure, had her furnace door open more than half the time. Even at 110 pounds pressure the door had to be frequently opened to keep the guage from showing more than the required pressure.

Another advantage is that it is built in the crane neck style, so that it can be turned in its own length. This seems to us such a matter of importance, where an engine is to be used in a village where there are so many narrow, crooked streets and alleys, that we are surprised that all other builders have not adopted it. There are many other improvements in the machine, which we have not space at present to enumerate.

Now that the trial is over the next thing to do will be to purchase an engine; which one it will be it is impossible for us to say, but after winning all the tests to which the engines were subjected yesterday, we do not see how our authorities can purchase anything else but a Silsby.

From the Herkimer Co (Little Falls) News, June 15th, 1877.

A special meeting of the Board of Trustees of the village of Little Falls, was held at their rooms on Monday evening, June 11, 1877. Present—Jonah May, President; Casler, Foley, LaDue, Leahy, Middlebrooks, Rankins, Stacy and Wiswell, Trustees.

The reading of the minutes was dispensed with.

REPORT.

The Committee appointed to examine the Silsby and La France steam fire engines, as to their construction and durability, report on the superior construction of the Silsby engine and its having greater advantages, and recommend the same.

On motion of trustee Leahy, seconded by trustee Wiswell, it was *Resolved*, That the report be accepted and placed on file.

Ayes—Casler, Foley, LaDue, Leahy, Middlebrook, Rankins, Stacy and Wiswell. Nays—None.

On motion, it was

Resolved, That a rotary steam fire engine be purchased of the Silsby Manufacturing Company. Carried.

Adjourned.

A. E. NAU, Clerk.

The Silsby steamer came out again Friday for practice. She was stationed at the water box near the Beattie house, and four sections of hose attached to her. Through these she threw four large streams fully as high as the Skinner Block. On Tuesday afternoon she again came out, and took water near the canal bridge. From there 1,000 feet of hose was laid up Ann street to Main, and up Main to Second. A stream was thrown through a 1½ inch nozzle, considerably above the flag-staff on the Skinner block. After doing this, about three hun-

dred feet of the hose was taken off and a Y attached, to which two lengths of hose were fastened. Two splendid streams were thrown through $\frac{1}{2}$ inch nozzles, the one on Main street going fully twenty feet above the highest point on the Burke block. The rise from the basin to Main street is about ninety feet.

After seeing these exhibitions, the village authorities could not very well do better than accept the engine, which has been purchased and placed in No. 3's engine house, to replace the old hand engine which has done such good service for several years past.

From the Albany Daily Press, June 15, 1877.

LITTLE FALLS.

The Board of Trustees have decided to purchase a steam fire engine from the Silsby Manufacturing Company. Considerable time was spent in getting at this decision. After putting the Silsby engine through eight severe tests against the La France and Button engines, the Silsby engine winning every test, the board were unwilling to make the purchase even then. A committee of three machinists was appointed to examine into the construction and durability of the La France and Silsby machines. The committee reported unanimously in favor of the Silsby machine. Even then the city fathers hesitated in making their choice. A few days since, Mr. Denne, of the Island Works, ordered his engine to play through 1,000 feet of hose up a steep hill, of which our village has many. Placing his engine on a bridge at the foot of the hill, it forced water up the steep grade and threw it over the Girvan house. He then added 200 feet of hose, making 1,200 feet in all, and throwing water over Skinner hall very easily. By many of those present it was said that the water was fully twenty-five feet over the flag-staff on Skinner hall. The general feeling among taxpayers is that the board did well in waiting, for the selection is a good one. Our fire department is now one of the best in Central New York, for the size of the place, having three good steamers and a hook and ladder truck.

ACCOUNTS OF TRIALS,
REPORTS OF COMMITTEES,
ACTION OF COUNCILS, &c.

POUGHKEEPSIE, N. Y., August 1, 1862.

The Engineers on this Committee recommended that the engine presented by the Seneca Falls company be purchased for the use of the city, for the following reasons:

1st. Its durability, less liability to get disarranged, and steadiness of operation.

2d. The fact that it throws a greater amount of water with less steam pressure.

3d. The fact that its boiler makes steam more freely and can be more quickly repaired, it being, in our opinion, the very best style of boiler yet made for the purpose of steam fire engines.

4th. The fact that there are three separate ways of supplying the boiler; one of them by means of a donkey pump connected with the tank, which may be used while the engine is at rest.

On motion, it was

Resolved, That the report of the Committee be accepted.

Resolved, That it be referred to the Committee on Public Property to purchase the steam fire engine presented by Mr. Silsby of Seneca Falls.

OFFICE CHIEF ENGINEER FIRE DEP'T, }
COLUMBUS, O., Sept. 16, 1864. }

H. C. Silsby, Esq., Seneca Falls, N. Y. :

DEAR SIR:—I desire to bear testimony to the superiority of the Rotary Steam Fire Engine, for efficiency, reliability, economy and durability, over the Piston Engine. I have no hesitation in saying that the machine manufactured at the Island Works is the *best engine* for fire use now in the country. The department over which I have control has used the piston engine manufactured by Messrs. Latta. To compare it with yours would be useless, as the *repairs alone* on it cost as much in four years as the original cost of a first class Rotary. In 1860 this city purchased the Rotary and discarded the piston engine. Two of your engines have been in constant service here since that time; the total repairs for both *has not been twenty dollars* for the four and a-half years. Two of these engines worked, on the 22d of June last, ten hours each, playing constant and steady streams, and to-day are in as good order as when placed in service. I have heard but one opinion expressed by chiefs of fire departments, engineers and firemen throughout the West, that for *reliability and efficiency they cannot be excelled*, for the following reasons:

1st. Less liability to derangement in running over the streets, and steadiness of operation while at work.

2d. It requires less time to generate steam, and throws more water with less pressure.

3d. It costs less to keep it in order, and the pumps are at all times reliable.

4th. I have never known one to fail at a fire.

I am, Sir, yours,

I. H. MARROW,

Chief Engineer Columbus Fire Dep't.

OSWEGO, N. Y., November 15, 1866.

H. C. Silsby, Esq. :

SIR:—We have been giving your steamer a pretty severe trial; a fire broke out here in the north-west elevator, at two o'clock on the morning of the 7th. *Your machine has been playing constantly since*

that time, and is still at work. For one hundred and twenty hours she has run without shutting down.

Yours,

JOHN H. STAATS, C. E.

MOBILE, ALABAMA, June 18th, 1867.

C. K. Emmell, Esq., Macon, Ga. :

SIR:—In a letter dated the 10th instant, H. C. Silsby, Esq., desires me to give you my opinion of the steam fire engine built at the Island Works, Seneca Falls, N. Y. I can only say that, after using two of them in this department during the past eighteen months, I must conclude that they are the *most reliable and economical* steam engine in service in this city, where there are five steam engines in use. During the above time these engines have been used more than any of the others, and *have cost nothing for repairs of engines nor repairs to hose*; whereas the plunger pumps *cost from \$20 to \$50 for repairs to hose alone at every fire*—all of the engines using the same hose, received at the same time and made by the same person. In addition to this, some of the *Piston engines are needing constant repairs*, after being used several times at a fire. To sum up, I would prefer giving at least \$1,000 more for a Seneca Falls engine than any other at present in service, and I think I have seen all that are used.

Any further information will be given cheerfully by

Your obedient servant,

THOMAS B. LYONS,

Chief Mobile Fire Dep't.

CHICAGO, ILL., October 6, 1868.

Mr. R. Bickford :

DEAR SIR:—In compliance with your request, I hereby give you my opinion of the Seneca Falls Rotary Steam Fire Engines. I acted in the capacity of engineer of the steam fire engine "John Long," of this city, for nearly seven years, during which time the average repairs on said engine were less per year than any other engine in the city, (although of nearly double the weight, and performing more hours of actual service at fires.)

The boilers I consider the best that have yet been introduced to us; the ease and facility, and more than all the *cheapness*, with which a new flue can be put in, in case one should give out, is a great desideratum in a steam fire engine, and a great improvement over the flues

inserted between sheets. The rotary engine and pump I consider durable and easily kept in order, *and far easier on hose*, (a very important item,) than any other engine in use.

Respectfully yours,

JOEL PRESCOTT,

No. 175 Madison Street.

SPRINGFIELD, ILL., May 7, 1869.

To the City Council:

GENTLEMEN:—Your committee to whom was referred the matter of purchasing a steam fire engine, beg leave to report,

That after a careful examination of the different steamers submitted to test and inspection before them, and due consideration of the report of the machinists called to their aid to-day in the premises, they, by a unanimous vote, concluded the purchase of what is known as the Silsby engine.

N. M. BROADWELL, Mayor,

R. M. RIDGELY,

J. S. BRADFORD,

HENRY LOOSELY,

Committee on Fire and Water.

Alderman Loosely offered an order that the Committee on Fire and Water be authorized to employ an engineer for the new engine. Adopted.

Alderman Bradford offered an order that the Comptroller be directed to issue interest-bearing city bonds to the amount of \$5,000, to pay for the Silsby steamer. Adopted.

OFFICE OF THE CITY CLERK, }
SPRINGFIELD, ILL., Dec. 15, 1869. }

Hon. S. L. McFadden, Mayor of Logansport, Ind.:

DEAR SIR:—At the request of Mr. Horace Silsby, I write you concerning the Rotary Steam Fire Engines. We have one in use here which gives entire satisfaction. I consider them superior in every respect to the Piston machines. The general points of superiority are: A boiler which is the best in use for steam fire engines; generating steam rapidly with common Illinois coal, (this the Button cannot use.) The materials used in her construction and the workmanship are first-

class in every particular. They are simple in construction and work with unusual steadiness. There is no comparison in the quantity of water thrown, and even pressure in hose, which are points of the greatest importance, and ought to be well considered by parties purchasing engines. These are facts which were fully demonstrated in a trial between the Rotary and Piston Engines, at the time the Rotary was purchased. In fact, the Rotary distanced her competitor (a Cole). Mr. Button was invited to participate at said trial with his machine, but would not compete. I will furnish any further information desired.

Yours, &c.,

F. HENRY, City Clerk.

I concur in the above statements. R. M. RIDGELEY,
Chairman Com. on Fire and Water.

I endorse the statements herein. JOHN SPEERS,
Foreman and Engineer Rotary Steam Fire Engine.

The statements made within meet with my approval.
E. R. ROBERTS, City Comptroller.

ENGINEER'S OFFICE OF ST. CHARLES BRIDGE, }
NORTH MISSOURI RAILROAD, }
ST. CHARLES, Mo., July 13, 1869. }

H. C. Silsby, Esq., Seneca Falls, N. Y. :

DEAR SIR:—The result of a year's trial of four of your Pumps, shows them to be the best small pumps on the work. The test has been severe, as we have some 25 Pumps of all kinds, from a 1,500 gallons per minute, down to your little No. 2.

Yours truly,

C. SHALER SMITH, Chief Engineer,
St. Charles Bridge.

QUINCY, LLL., Dec. 6, 1869.

RECORD of time of service and cost of repairs of Steam Fire Engines in the Quincy Fire Department:

"James Wood," Rotary—Has been in service since Sept. 1st, 1866, and cost for repairs—nothing.

"James M. Pitman," Rotary—Has been in service since March 1st, 1868; cost for repairs to date \$13.50, and on duty since delivery.

"James D. Morgan," Piston, Button make—Has been in service since March 14th, 1868; cost for repairs to date, \$324.25, *and out of service since May, 1869.*

I certify that the above statement is correct, as shown by the books of the Board of Fire Engineers.

JOHN H. AYRES,
Sec'y and 1st Ass't Engineer.

The above is the cost of repairs done outside of men employed by the Department. The Button has been taken apart several times on account of refusing to lift water. *The Rotary has never refused to lift and has never been taken apart.* The engines referred to are the "Morgan," Button engine, and "Pitman," Silsby engine.

I certify that, on three occasions since the reception of the Button engine here, said engine has refused to lift water when brought out of service; the "lift" required being only fourteen feet by actual measurement, and, when taken to other cisterns with more depth of water, did not then lift until primed.

S. P. CLARK,
Engineer of Steamer Morgan.

CHIEF ENGINEER'S OFFICE, FIRE DEPARTMENT, }
ROCHESTER, N. Y., April 22, 1870. }

George C. King, Esq., Kalamazoo, Mich. :

DEAR SIR:—Your favor of the 12th came duly to hand and noticed. In reply, I would say that this city has one of Silsby's Rotaries and one of Clapp & Jones' Piston Steam Fire Engines, and have had them in use nearly one year. I prefer the Silsby engine for several reasons, among which are the following:

It is a finer piece of workmanship; stands perfectly still while in operation; gets up steam quicker; and, in my opinion, will need less repairs; does not wear out hose by continual backward and forward motion. We have not paid a dollar repairs for the Silsby engine, while the Clapp engine has had several small repairs made to it. At one large fire, both of these engines worked nearly twenty consecutive hours; and while doing so, the Clapp engine entirely spoiled 150 feet of new rubber hose, and seemingly damaged about the same quantity of leather hose, while no damage was done to the hose attached to the Silsby engine. The Clapp engine has to have its wheels securely

blocked while in operation, to prevent its injuring hose, while the Silsby engine stands perfectly still, without any blocking. For the above reasons, I prefer the Silsby engine to any other I have seen.

I am very truly yours,

W. BAYER, Chief, Engineer.

I fully concur in the above statement.

A. G. WHITCOMB,

Chairman Fire Committee.

ADIRONDACK COMPANY'S RAILROAD, }
SARATOGA SPRINGS, May 28, 1870. }

Hon. T. F. Olds :

DEAR SIR:—I have been requested to give you my opinion of the Silsby Steam Fire Engine. We have one of Silsby's second-class steamers in this place, that has been in service nearly four years, and it gives universal satisfaction. We have two of Button's Piston engines in this village, (procured before the Silsby engine,) and thus have had excellent opportunities of judging of the advantages of the Rotary over the Piston machine. The Rotary is comparatively a very simple piece of machinery—no valves, no connecting rods, etc., to get out of order. It is much easier on hose than a piston engine, as you cannot observe *any motion* to the hose when working the machine to its full capacity; is much less liable to get out of order (it costs our village twice as much for repairs on each of the piston engines as it does for the rotary); does not use more than half as much fuel, and is altogether the most economical steamer. Our engine has never failed to work well at a fire, or on any other occasion. For three years (lacking three or four months) the total cost of repairs to the rotary was \$4.50, and we have done a great deal of work with her during that time—at one time working seventy-two hours, (stopping only once during the seventy-two hours to change hose,) filling an immense gas tank through 400 feet of hose. As for throwing water, they need only to be seen in operation to convince any one that they will throw more than the piston machine.

I am free to say that when the Rotary came to this place, I was strongly prejudiced against it, and a great believer in pistons. I *worked hard against the Rotary*, but on seeing the operations of the machine, the simplicity, so little to get out of order, its apparent durability and smooth working—no motion to the engine or hose—I made up my mind that possibly I was mistaken. Now I know I was, and to-day I consider the rotary engine the best engine for fire purposes made.

Yours very truly,

C. E. DURKEE.

STATE OF NEW YORK,
 WILLARD ASYLUM FOR THE INSANE, }
 OVID, February 22, 1871.

H. C. Silsby, Esq., Seneca Falls, N. Y. :

MY DEAR SIR:—Your fire Engine has worked admirably—much beyond my expectations. I doubt whether any fire engine has ever passed so successfully a test so severe as the one here has been subjected to.

She ran almost continuously for twenty consecutive days, without accident or repairs, and seemed as good and sound at the end of that time as when first she started. She forced water over half a mile, elevating it fully one hundred and fifty feet, and steadily raised the water in the reservoir, while the asylum used a full supply constantly.

The machine has been of great service; indeed, I hardly know how we could have got along without it. I am sure no one hereafter will doubt the capacity and durability of your engines, in forcing water. Again I report our thanks for your great kindness, and believe me,

Yours truly,

D. A. OGDEN.

CEDAR RAPIDS, IOWA, Dec. 22, 1873.

We have had a Silsby engine in use in this city for the past four or five years, and she has given general satisfaction. I believe it to be the best machine in use. In the first year she paid for herself several times over.

GEORGE L. STEARNS,
 Chief Engineer Fire Department.

LANSING, MICH., Oct. 25, 1874.

We have one Silsby and one Clapp & Jones, both bought at the same time. The Silsby is by far the most complete engine, and entirely under the control of the engineer under all circumstances. She will draw water from our avenue bridge, thirty feet perpendicular, and do it easily, which the Clapp & Jones has failed in doing more than once. The Silsby will throw two streams nearly as far as she will one, and will do good fire service with from forty to sixty pounds of steam, where the Clapp & Jones has to carry from sixty to eighty. One of the nicest and best points in the Silsby is that it stands still while working, and the Clapp & Jones vibrates with the motion of the piston, which, when running fast, is a great objection in my mind, to

say nothing of the wear and friction on hose. The water pressure on the hose is greater with a piston pump than with a rotary.

After about twenty-five years experience as a fireman, and a close observation of the subject, I do not hesitate to say that for a small city or village the rotary engine would be the one that I should buy. At the time we bought the engines the Silsby came out ahead on six of the seven tests they were put to by the committee of old firemen that had the matter in charge, and a good many of our citizens who were in favor of piston engines before the trial, came out in favor of the rotary.

J. W. EDMUNDS,

Chief Engineer Lansing Fire Department.

OFFICE OF SUPERINTENDENT OF FIRE DEPARTMENT, }
BUFFALO, N. Y., April 2d, 1873. }

* * * We have four piston engines, and four Silsby rotary engines, made at Seneca Falls, N. Y., and we are now getting four more of the rotary engines made. I think they are *the best engines I ever saw*. They stand perfectly still while at work, and the stream is steady, making it much easier on hose, and they will draw water every time. I have often had to take one of the piston engines away from the reservoir and put a rotary in its place to draw the water; in fact, I never knew one of the rotary engines to fail at a fire, and the repairs on them are very light.

THOS. B. FRENCH,

Supt. Fire Department.

BUFFALO, May 17, 1873.

With the recent improvements lately made in the Silsby fire engines, I can safely say they are superior to any in the country.

THOS. B. FRENCH,

Supt. Fire Department.

CHIEF ENGINEER'S OFFICE, FIRE DEPARTMENT, }
CLEVELAND, OHIO, April 16, 1873. }

* * * For fire purposes, after ten years' experience as Chief Engineer of this department, I have no hesitation in saying that the Silsby engine is the most reliable and economical yet introduced; the cost of wear and tear is comparatively nothing, and a great saving in hose is effected in consequence of the steady pressure. Their boilers generate steam more rapidly than those on any other machine built. It has been my aim at all times to obtain and have on hand the best

apparatus I could procure for the extinguishment of fires, and in view of my reputation as Chief Engineer, and the interests of the citizens who have long conferred the office upon me, I have left no stone unturned to see for myself, and procure the best engines, hose carts, hose and hook and ladder trucks; in fact, all the appliances of the best material and manufacture, and I say without reluctance, that in every respect I consider the Silsby Rotary Power Engines the *only reliable* machines for fire purposes.

JAMES HILL,
Chief Engineer.

CLEVELAND, OHIO, June 3, 1874.

We have fully tested the late improvements and additions made by the Silsby Manufacturing Company in their steam fire engines, three out of ten of the ten Silsby machines in our fire department being of the latest style. We have no hesitation in saying that the Silsby steamers are superior to any piston engine for fire purposes, and that their recent inventions place them far ahead of any steam fire engine yet introduced.

JOHN HUNTINGTON,
JAMES BARNETT,
F. HALT WORTH,
Fire and Water Com.

MAYOR'S OFFICE, CHICAGO, April 2, 1874.

* * * In respect to the working merits of the two machines, my choice would incline to the rotary as being the most simple and least expensive to keep in repair.

J. MEDILL, Mayor.

JOLIET, ILL., April 23, 1873.

* * * On being elected Mayor, in March, 1869, I found the city needed a steam fire engine. * * * I at once made three prominent styles of steam fire engines a study, and went to different cities to see them work. My decision was that the Silsby was champion on every point. The Council ordered one to be purchased, which was done that season. It has been on duty ever since, has given perfect satisfaction in all respects, has cost almost nothing for repairs, and seems to be as good as new. On account of the rapid growth of the city, the Council decided that second steamer was necessary, and purchased a duplicate of the first. This also gives perfect satisfaction.

W. A. STEEL, Mayor.

SAN JOSE, CAL., May 29, 1873.

* * * I have examined the list of repairs on the rotary steam fire engine in use by this city, and find * * * the amount paid for actual repairs will not exceed one hundred dollars for the whole time in service, (nearly five years.) The steamer is now in good working condition, and has never failed to lift water and work satisfactorily when called out for duty. I have had to pump and use very dirty and sandy water a great deal of the time, (so muddy at times as to choke up the feed pipe of the boiler,) and never experienced any difficulty in working the pump, and forcing a steady stream through the hose. In my experience with pumps no piston pump is equal to a rotary pump for handling dirty water.

R. KNOWLES,
Engineer Steamer "Empire."

OTTUMWA, IOWA, March 3, 1874.

* * * Our Silsby engine gives good satisfaction. It has been in use about six years, and in that time has saved hundreds of thousands of dollars' worth of property from destruction. The expense for repairs has been trifling.

Last Thursday night, a mill adjoining our engine house was discovered to be enveloped in flames, and notwithstanding the confusion attending the saving of the furniture and apparatus, in seventeen minutes from the time of the first cry of fire, by my watch, we arrested the fire in our engine house, so that by putting a temporary roof on it we have shelter for our engine until we can build a permanent house. I think I can safely say that the Silsby engine does all that is claimed for it. At the Union block fire, it threw two streams of water for eight hours.

W. L. ORR, Mayor.

AUGUSTA, GA., April 26, 1873.

* * * In my judgment, after more than a year's use of a fourth class rotary used by hand, I do not believe they are equalled by any steamer built as a fire engine. Their finish is superior, they cost less for repairs, use less fuel and possess greater powers of endurance than any other engine known to me.

H. CLAY FOSTER,
Capt. "Gazelle" Fire Co. No. 4, Augusta Fire Dept.

LANSING, MICH., April 16, 1873.

* * * Having been Chairman of Committee on Fire Department for the past two years, during which time our city purchased a Silsby engine, after a trial between it and a Clapp & Jones engine, I have had a good opportunity to know something about both of them. In the trial between the two engines in our city, the following preferences were given the Silsby engine:

She (the Silsby) is much more nicely built, showing a superiority of workmanship. She can and did throw more water, and throw it further with 36 pounds of steam less than the Clapp & Jones; she also does it with more ease, standing still in her tracks, while the Clapp & Jones is bounding back and forth, wearing fifty to one hundred feet of hose out in a very short time. She has also facilities for getting water into her boiler when the engine is not running; this the Clapp & Jones cannot do. She will throw water as great a distance without a check valve as the Clapp & Jones can with one. I have seen a small piece of ice get under the valve of the Clapp & Jones, and the consequence was she lost her suction; there being no valves in the Silsby, she cannot have this trouble.

The Silsby Manufacturing Company have an engine that has never been beaten by the Clapp & Jones to my knowledge, and never will be, either in workmanship, durability, getting up steam, amount of water thrown, or anything else appertaining to fire duty.

ALEX. BLAIR,
Chairman Fire Committee, Lansing, Mich.

CHARLOTTE, MICH., April 22, 1873.

* * * During the time I was Recorder of this city, our Council deemed it advisable to investigate the merits of steam fire engines, with a view of purchasing. We investigated the Silsby rotary and the Clapp & Jones, and the result was we were unqualifiedly in favor of the rotary. While in action the rotary stands perfectly still, presents an even pressure upon the hose, and with an average steam pressure one-third less than the Clapp & Jones.

The piston engine, by its peculiar backward and forward motion, drags the hose slightly, wearing it, and making quite an uneven pressure upon the hose, which, of course, increases its liability to burst. The item of hose is no small thing. Upon a trial giving both engines 80 to 90 pounds of steam, the Silsby will do one-third more work. The Silsby can throw a much larger quantity of water than the Clapp

& Jones, and in consequence of this is enabled to use a larger nozzle for heavy work. Any mechanic can repair it, and any careful engineer can run it. We have never seen the day when we would trade our Silsby for a Clapp & Jones.

J. D. McCUTCHEON.

LA CROSSE, WIS., April 24, 1874.

* * * I can say that I deem it a pleasant duty to add my strongest recommendation in favor of the Silsby engines. My experience as Chief Engineer of the fire department for the past five years, and my acquaintance with all classes of steamers, justifies my making this choice.

Among the many reasons that practical tests will approve, I find the following will hold good as placing these steamers ahead of the piston-pump engine:

1st. They can be placed for duty on sloping ground, such as river banks and other uneven places, where piston engines will not work.

2d. They will lift and throw more water with a less amount of steam than a piston engine.

3d. The wear and tear on hose is fifty per cent. less than with the piston pump, from the fact that the stream is steady and does not allow the hose to breathe or expand and contract.

4th. I have seen our steamer of the above style doing splendid fire duty where a piston engine would dance itself into the river off the bridge, unless chained.

5th. The cost of repairs is too trifling to mention.

6th. I have seen our engine lift water twenty-three feet with perfect ease, overcoming strong back pressure, and doing fine fire duty with sixty pounds of steam.

I attribute all this to the perfect harmony of the rotary motion in pump and cylinders, believing it to be the best principle upon which to throw water.

FRANK HATCH,

Chief Engineer Fire Department.

MAYOR'S OFFICE, CHICAGO, ILL., March 26, 1874.

H. E. Staples, Esq., President Board, Whitehall, Mich. :

SIR:—Your enquiries as to which in my opinion would be the best steam fire engine for use in a small town is received. In reply I

would inform you that of twenty-seven steam fire engines in use in Chicago, twelve are of the Silsby make (rotary pattern.) The other fifteen machines are of different manufactures, and mainly on trial. I would recommend a fourth size Silsby machine for a town the size of which you speak. I would not say anything disparaging of other makes, but must state that our experience with the Silsby engines leads us to the conclusion that for general excellence and serviceability they cannot be surpassed by any.

H. D. COLVIN, Mayor.

MUSKEGON, MICH., April 18, 1874.

* * * I have had charge of a Silsby engine for three years in this city. It is now five years old and the same as new in the working parts, they being so few as to render it more durable than any other. It is reliable in all circumstances, from its power to draw water a great depth, (25 to 30 feet,) and so simple that any person with ordinary judgment and a little self-reliance can manage it, there being no valves, cross-heads, slides, eccentrics, straps, keys, boxes, lugs, bolts, piston rods, &c., &c., to adjust.

The boiler can always be supplied with water when the engine is at rest, which cannot be done by any other engine, thereby avoiding the danger of burning the boiler when stoppage occurs in changing hose, &c. Another feature in favor of the rotary is its steadiness of action, which overcomes the great jerking and wear of hose which occurs with the reciprocating or plunger pump, and the pump cannot fail by obstruction, as was the case with the Clapp & Jones engine exhibited here, which failed to take water four feet after getting a little bit of sawdust under the valves. Another Clapp & Jones engine failed at Grand Rapids from the same cause; also at the Sweet hotel fire, and at Montague again it lately failed to take water, consequently the pump froze and the boiler burned.

My experience with pumps and engines compels me without prejudice to say, that in my opinion the rotary is the most reliable pump in existence from its great power, simplicity, durability and capacity.

D. KELLY, Ex-Engineer.

OSHKOSH, Wis., April 21, 1873.

* * * Ours is a second class Silsby rotary. She has been here three years, in which time she has run to 212 fires, has traveled 238 miles, and has played 316 hours on fires; extra work playing on ruins

and pumping in reservoirs, 84 hours. The repairs have been \$30, and she is now in first-class condition.

The hose on the rotary engine lays perfectly still, while the hose on the plunger engine keeps working backwards and forwards more or less, which wears it out very fast.

A. W. FARRAND, Engineer.

CATSKILL, N. Y., April 22, 1873,

* * * We have two steamers here, one a Silsby and the other Clapp & Jones, and the Silsby has given the best satisfaction. Since the village purchased these two steamers, the rotary has never failed at a fire and is always ready, while the piston has had to be primed before she would draw, which is a very important item.

I. L. THOMPSON, Engineer, &c.

ST. PAUL, MINN., May 4, 1874.

* * * We are using the Silsby, having purchased two more the last season. We have had opportunities of testing them under all circumstances and in the most severe winter, and I am convinced that they are equal and I think better for all work than any other machine. They have never failed in getting to work to our perfect satisfaction in the most severe weather, and as to economy in repairs and running expenses, I think them much the cheapest. I have no interest in the sale of any steamers, but after long trial I wish if possible to benefit fire departments by giving them the benefit of my experience.

R. O. STRONG,

Ex-Chief Engineer.

TOLEDO, OHIO, April 23, 1873.

* * * I have had charge of a Silsby rotary steam fire engine for four years, and four years previous I had charge of a piston engine, making eight years in the Toledo fire department. With the piston you could always see the hose near the engine go and come, that is wear on the ground, and we always had to keep water in the pump to make her lift water in case of a fire, which is liable to freeze on a long run.

The rotary does away with all this trouble, never requires priming

in the pump, no centres to pass, a steady uniform motion is acquired, and no valves to get clogged up and stop her work.

I prefer the rotary to all others for the following reasons:

- 1st. They will wear longer than a piston.
- 2d. They are easier on hose.
- 3d. They never give out at a fire.
- 4th. They are easier to keep in repair.

WILLIAM E. CRAFT,
Engineer No. 1.

VICKSBURG, Miss., April 24, 1873.

* * * We have in our city three Silsby rotary engines. * * * With sixty pounds of steam we do the most that is required for fire duty, and can hold the stream over any six story building, and maintain it as long as necessary. * * The rotary will do more effective work with 1,000 feet of hose than the piston can accomplish with 600 feet without bursting the hose, the rotary being steady and regular in her motion, and the piston being irregular in motion.

R. F. BECK,
Chair'n Fire Com., and Foreman Phoenix Co. No. 3.

BURLINGTON, IOWA, April 20, 1873.

* * * After an experience of about sixteen years with steam fire engines, and part of that time with the reciprocating or piston engine, I can safely say as to the durability of the rotary engine, that I do not think they can be excelled. I am now running one that is seven years old, and can take it out to-day and throw just as far as the day it came here. As regards reliability, I have never had one of them refuse to work. I do not think it costs over twenty dollars a year each for repairs to our engines.

IRA A. HOLLY, Engineer, &c.

The above is my opinion of the engine.

THOMAS DUNCAN,
Chief Engineer Burlington Fire Dep't.

CARLISLE, PA., May 21, 1873.

* * * Before closing this, I cannot refrain from adding my

humble opinion, supported by 200 earnest firemen, as to the great value of the Silsby steam fire engines. In the four years that we have used our engine, at a great many trials, and at hard fire service, she has not cost us ten dollars for repairs. If our company had the vote to take to-day, and the choice of all the steamers in the United States, you would find us unanimously in favor of the Silsby engine.

L. T. GREENFIELD,
President Union Fire Company.

OFFICE OF CHIEF ENGINEER,
KANSAS CITY, Mo., July 20, 1872. }

We have just had an extensive fire; your engine, the "Campbell," did all the work. The Gould played out completely. Her main shaft was out of order, so that she did not make a solitary revolution. The rotary forever.

J. M. SILVER, Chief Engineer.

(The "Campbell," referred to above, is one of our machines, which has been in service in Kansas City since March, 1868.—S. M. Co.)

BRISTOL, PA., Feb. 15, 1873.

We consider our engine perfect from signal light to fuel box, and for effective fire duty second to none in the country. We had a fire here the other night at a snuff mill. She worked over three hours without a skip or break, standing in an inclined position, on the bank of a creek. The action of the machinery was excellent, and elicited admiration from all. A prominent Philadelphian present assured me that had one of their engines been forced to stand in the same position, it would have bounded into the creek before the fire was out.

CHARLES E. SCOTT,
Secretary Bristol Fire Company.

HALL OF YOUNG AMERICA FIRE COMPANY No. 2, }
VIRGINIA CITY, NEVADA, June 7, 1874. }

* * * We have never failed to draw or throw water yet, and have beaten the other two steamers in town all through, and they are second class while ours is third. One is an Amoskeag, and big enough

to throw water a mile; the other is a Button, which is the poorest engine I ever saw for duty. The rotary is the best steamer I ever saw, and they are out of order less than any other.

CHARLES G. FOGG,

Engineer Steamer No. 2.

MEADVILLE FIRE DEPARTMENT,
CHIEF ENGINEER'S OFFICE,
MEADVILLE, PA., October 1, 1874. }

We had a trial of our department yesterday, which was a success. The steamer bought of you ten years ago did her duty well. We laid a line of 2,600 feet of hose; she threw a $1\frac{1}{4}$ inch stream 125 feet. The hose was laid over a grade of about twenty-five feet, and she lifted the water from a reservoir twelve feet. She has been in service now nearly ten years, and has cost one dollar and twenty-five cents for repairs in that time.

J. M. CLARK, Chief Engineer.

W. A. LOGAN, Secretary Fire Department.

MARYSVILLE, CAL., May 27, 1874.

* * * We have here two Silsby Steamers—one new and one more than ten years in use. Cost of repairs during that time, three hundred dollars. Have given most perfect satisfaction.

C. M. GORHAM, Mayor,

I. G. SHEPARD, Chief Engineer.

COUNCIL BLUFFS, IOWA, April 19, 1873.

* * * We have here a second size Silsby rotary engine, which has been in constant use for over four years, costing only twenty-five dollars for repairs, and most of that was by an accident to the suction neck, caused by a bad crossing. We have to fill all our cisterns with the engine after fires, and hardly ever use less than 500 feet of hose, and in one instance used 3,300 feet, the longest line of hose laid in Iowa.

For the saving of hose, I think the rotary is preferable to a piston, for the water goes through with a uniform pressure, whilst a piston engine sends it by jerks; and the saving of hose is a great item.

W. C. SAVAGE,

Engineer of "Bluff City No. 1."

OFFICE OF POLICE COMMISSIONERS, }
 PORTLAND, OREGON, Nov. 9, 1874. }

* * * They (Multnomah Fire Company) continue to maintain the reputation of these (Silsby) engines for service. If all your engines have such care taken of them as these have, I see no reason why they are not good for thirty years service at least. It is now about nine years since the "old engine" left your shop, and her pump, engine and boiler seem to be as good as new. It is admitted that she plays as good a stream at fires as the second class Amoskeags, (we have two,) which have not seen one year's service yet.

A. B. HALLOCK.

OFFICE CHIEF ENGINEER FIRE DEPARTMENT, }
 ELGIN, ILL., Dec. 1, 1874. }

The third size rotary engine purchased of your firm seven years since continues to give entire satisfaction.

She has never required any repairs, is always ready for duty, and when occasion requires, performs her work in the most satisfactory manner.

I consider the rotary engine superior to any other, because of its reliability and economy in repairs, ease upon hose, and the ease with which it is operated.

GEORGE F. LEWIS,
 Chief Engineer Elgin Fire Department.

FIRE DEPARTMENT OFFICE, }
 CIRCLEVILLE, OHIO, July 6, 1874. }

Silsby Manufacturing Company:

GENTS:— * * * On the 4th instant our little city was visited by a disastrous fire, destroying many thousand dollars worth of property; the wind at the time was blowing almost a gale from the southwest.

We had in the department two hand engines and one of your third size steamers, the last-named having been in service now nearly nine years. During the fire the hand engines became disabled and the entire work was left to our steamer. She worked beautifully, and her praise was in the mouth of every one. Working at the fire and filling the cisterns, she worked almost incessantly for thirty-six hours. I believe she is the best steamer in use—she is simple, steady, and always reliable.

I. P. TODD, Chief of Fire Department.

MONTGOMERY, ALA., Oct. 16, 1874.

* * * In this trial, the superiority of the Silsby has been more than confirmed, in her being able to draft water when the other (the piston) could scarcely get enough to furnish her boiler. The "Alabama No. 2" is, as you know, one of your light third size engines, and was received by the city in June, 1871, since which time she has never been out of service one hour, nor has she cost to exceed five dollars for actual repairs. Her fire record is, she has never failed to work on a single fire, where any other machine could get to work, and to-day she worked through 1,800 feet of hose at a fire. * * * I can safely recommend the Silsby engine as the best in use.

A. M. KENNEDY,
Chief Engineer, Montgomery Fire Department.

WARREN, PA., May 10, 1874.

Silsby Manufacturing Company:

GENTS:—We this morning had abundant use for the little steamer "Rufus P. King," in two quite extended conflagrations. She performed nobly for five hours incessant use, and saved hundreds of thousands of dollars.

Yours truly,

JOHN SILL, Burgess.

From the Whitehall Forum, Whitehall, Mich., May 28th, 1874.

OUR NEW STEAM ENGINE.

Perhaps we are safe in asserting that Whitehall has not been the scene of so much general excitement since last fourth of July, as when it was announced that a test was to come off that afternoon between the Whitehall Silsby steam engine and the Montague Clapp & Jones engine.

The streets were universally thronged with spectators, many of the mills shutting down so as to give their hands a half holiday.

The engine is a fourth size machine, manufactured at the Island Works, Seneca Falls, N. Y., and so far as the working of the engine is concerned, nothing better could be wished for. The engine is a beauty, and an honor to the town. In our description we do not mean to convey the idea that the "Whitehall" is superior in the completeness of its machinery to the other steamers sent from the Island Works, for the Silsbys never permit any engine to leave their establishment

unless it is absolutely perfect. The special points in the "Whitehall" is in the finish of the different parts, and the general beauty and brilliancy of the effect produced thereby. All the exposed metallic parts of the machine are nickel-plated—boiler, air-chamber, lamps, etc., even to the axles, and the effect as it stands in the sunlight is far beyond description. All the rotary steamers are models of grace and beauty, as well as utility, but the Whitehallites have secured a machine that they can point to with pride, and thank their village fathers for the zeal and determined energy with which they have pushed this enterprise.

The first test was on getting up steam and forcing water through 200 feet of hose. The time was as follows: from time of lighting fire, showed steam in $1\frac{1}{4}$ minutes, 10 pounds in three minutes, 15 pounds in three and a-half minutes, 20 pounds in four minutes, 30 pounds in five minutes, and 40 pounds in five and one-fourth minutes, and started, forcing a good stream out of the nozzle in five and three-fourths minutes. The Clapp & Jones engine from Montague was about half a minute behind, although having warm water in the boiler before the fire was started.

The first throwing was done with $1\frac{1}{4}$ inch nozzles on each machine, the Silsby throwing fully 40 to 50 feet the farthest. The Silsby then shut down long enough to put on a $1\frac{1}{4}$ inch nozzle, and threw a stream of that immense size and volume far beyond what had been done before. The Clapp & Jones engine did not attempt using a nozzle of that size.

The next test was in throwing two streams of one inch each by each machine, the Silsby (as usual) ahead of the other. By means of a Siamese coupling, another stream was then added to the Silsby, making three streams, two of which were $\frac{3}{4}$ inch and one $\frac{1}{2}$ inch. The three streams were steadily and powerfully maintained, both horizontally and perpendicularly, as far (and many times farther) as the two from the other machine, and demonstrated fully to the doubting ones the greater power and capacity of the rotary.

Twelve hundred feet of hose was next put on and laid up the hill, and with a $1\frac{1}{4}$ inch nozzle the water was thrown 186 feet.

The next and final test was throwing two streams, $\frac{7}{8}$ inch each, through 1,150 feet of hose, by means of the Siamese (or branch) coupling, water being thrown 178 feet.

During the trial the steam was held very steadily at about 90 to 100 pounds, and when working under a full head of steam the machine stands perfectly still, so that when a goblet of water was placed on the tire of the wheel it did not shake off or spill a single drop. On the contrary, the Clapp & Jones engine had to be blocked on the dock with railroad ties to keep it in position, and owing to the jerking plunger motion burst five lengths of hose during the trial. One very

important feature of the Silsby engine that makes it particularly reliable for lumbering towns is that it has no valves in the pump to get clogged or choked up with bark or sawdust, as has been the case with the piston engines on several occasions in this part of the country.

The utmost good feeling was manifested during the trial on both sides, and the people of Whitehall and Montague can congratulate themselves on being so well fixed to aid each other in subduing any fire that may break out in either place.

OSHKOSH, Wis., Sept. 16, 1873.

Statement of the amount paid by the city of Oshkosh for repairs on steam fire engine Brooklyn (Amoskeag), during the first three years after purchase:

| | |
|---|----------|
| Jan. 11, 1868, to Beckwith, Davis & Co..... | \$22 88 |
| Aug. 27, " " " " | 22 87 |
| Dec. 10, " " " " | 64 85 |
| Dec. 30, " " " " | 32 50 |
| Nov. 4, 1869, to Fletcher & Everett, | 2 85 |
| Dec. 16, " to Beckwith, Davis & Co..... | 18 72 |
| Dec. 16, " to J. F. Streich, | 11 25 |
| June 17, 1870, to Amoskeag Manuf'g Co..... | 202 80 |
| Nov. 9, " to Fletcher & Everett, | 39 13 |
| Total..... | \$417 85 |

The above statement is correct.

J. B. POWERS, City Clerk.

OFFICE OF THE BOARD OF FIRE COMMISSIONERS, }
CHICAGO, March 22, 1875.

To Whom it may Concern :

We have had our attention called to a circular issued by Clapp & Jones, and C. T. Rogers, their agent, which is evidently designed and put forth to deceive the public and officials, relative to Steam Fire Engines and the test trials of the same had in this city on September 15th and 22d, 1874. Said circular pretends to give the "official reports" of the trials that took place on those dates. Such statements are false and untrue in general and detail, we having furnished no "official" reports of said test. Said trials were very exhaustive and thorough, and after witnessing them personally, we decided that the Silsby was the most reliable and durable, and did the best average work with less

average steam pressure than the others. After said trials were over, we ordered all of the new machines from the Silsby Manufacturing Company, the Silsby being the only machine that worked through both trials without breaking down or becoming disabled. The fact is that on the last day the Silsby was left to play alone a portion of the time. We have also found the Silsby much the least expensive to keep in repair.

MARK SHERIDAN, President.
C. A. RENO, Commissioner.

Trial of a Third Size Silsby Steam Fire Engine.

From the Lake City, Minn., Leader, May 27th, 1875.

TEST OF THE SILSBY ENGINE.

The trial of the new steam fire engine, on Wednesday afternoon, was a subject of general curiosity, and drew out an immense crowd of citizens. His excellency, Mayor Brown of Red Wing, headed a delegation from that city, and we also saw Chief Engineer Morison of Winona, and Assistant Engineer Dunn of the same city. Many others from the country and neighboring towns were on hand to see the power of the engine.

At a little before two o'clock, the boys turned out in full force, and whirled the steamer from its hiding place in Ditmar's barn, down to the pond near Doughty & Neal's wagon shop. The engine was closely followed by two hose carts, and the engine no sooner took its stand than the boys dropped down 450 feet of hose, and were anxious for the fun to commence. The hose was laid up Centre street to Washington, and around the corner in front of Richardson Brothers' store. In $3\frac{1}{2}$ minutes from the time of applying the torch, with cold water in the boiler, the steam gauge indicated five pounds of steam; $5\frac{1}{2}$ minutes, fifteen pounds; $6\frac{1}{2}$ minutes, twenty pounds; 7 minutes, twenty-five pounds; $7\frac{1}{2}$ minutes, thirty-five pounds and a stream of water running from the nozzle. With ninety pounds of steam a $1\frac{1}{2}$ inch stream was thrown up the street 227 feet, everlastingly wetting things down. It tossed the same stream 175 feet straight up in the air.

More hose was attached and extended up Centre street to C. F. Young's brick block, and a stream was thrown completely over his high three-story building. Then a double line of hose was attached to the engine, and two powerful streams were thrown over the same building. This was good work—two streams being formed through two separate lines of hose, each measuring 750 feet. Then a Siamese was attached to one of the lengths and three streams poured a flood of

water upon the roof, and sending 160 feet from the nozzle horizontally. After this success, one of the lines was removed from the engine, and the whole 1,500 feet of hose was extended up to the Episcopal church, forcing an inch stream over the spire, and up to the height of 112 feet from the ground, the hose running on an elevation of forty-five feet from the level of the water.

This was the grand feat of the afternoon; after which all the hose except one hundred was taken off, and a $1\frac{1}{4}$ inch stream thrown a distance of 278 feet.

All went home feeling that the engine had done good work, and had fully substantiated all that had been said in its praise. The boys were in good spirits and pulled the hose carts from one street to another at double-quick as if it were rare sport.

The Mayor called a meeting of the Council Thursday morning, and the engine was accepted and papers made out and signed by the proper officers. Lake City can justly feel proud of her fire apparatus, and our citizens can now feel as though their property was not wholly at the mercy of the flames.

WONDERFUL PERFORMANCE OF A STEAM FIRE ENGINE.

MONTGOMERY, ALA., March 17, 1875.

Silsby Manufacturing Company, Seneca Falls, N. Y. :

DEAR SIRS:—Our engine and pump for the past week have been put to a very severe test, and of course came out victorious. As it may be of service to you, I will try and give you an idea of the duty performed by the "little plaything," as she was termed when we first received her.

Just one year ago, the Water Works Company began laying their pipes in the city. We have what is called the reservoir system, the pumping station being on the rising bank, and the reservoir $1\frac{1}{4}$ miles from the station, connected with a ten inch main, with an elevation of 160 from pumping station, the bottom of the reservoir. We have in operation about fourteen miles of pipe, consisting of eight, six, five, four and three inch mains, and the most of it up hill. These of course had to be kept full all the time to supply the demands of private customers. The pumping station is situated on the bank of the river, and to enable the Water Company to supply the necessary water in the summer, when the river is low, they were compelled to place their pumping engine, (a Worthington of 100 horse power.) forty feet below

the level of the bank. To do this, they dug a well thirty feet in diameter and forty feet deep, and walled it up with brick and cement.

During the recent freshet in the river, the water from the river forced itself through the bottom of the well and covered their pump and engine with thirty feet of water. The water was entirely exhausted in the reservoir and something had to be done. There was not a single steam pump in the city, and the best thing they could do was to request the loan of our pump and engine, to try and pump the water out of the well. This they nearly accomplished, by placing the pump and engine on two planks, and suspended by ropes in the water, and supplied and exhausted steam with rubber hose.

They had all but ten feet of the water out of the well, when there was an explosion, and the bottom of the well blew up, and again the water was thirty feet deep. And now there was no hope of a water supply under two weeks, unless the little engine could be made to furnish the supply. Would she do it? was the all-important question. A reservoir 160 feet elevation, one and one-half miles of ten inch main to it, fourteen miles of nearly empty pipes, no water in the reservoir, and a city of 15,000 inhabitants who had learned in a short time to depend upon the Water Company for their supply. Need we tell you that she nobly did her duty, and within twelve hours had all the pipes filled. This she kept up for a whole week, and was only relieved from duty yesterday.

The manner in which this was done, was by connecting a 2½ inch hose to the ten inch main, and starting the engine to work. You may rest assured that we, who have always felt so much confidence in her, felt a little *shaky*, when we learned of the test she was to be put to; and as for the people generally, they laughed at the idea, and even when ocular proof was given them, could scarcely believe their eyesight. We are now more than proud of her. We forgot to tell you that the capacity of the reservoir is three million gallons, and when the engine was released there was six feet of water in it, besides furnishing the usual daily supply to citizens.

Yours truly,

B. L. WYMAN,
Sec'y Ala. No. 2.

[The machine referred to above is one of our fifth size steamers.
—SILSBY M'F'G Co.]

SMITH'S FALLS, June 30, 1875.

To the Council of Smiths Falls, Ont. :

We, the committee appointed by you to examine the construction and working qualities of the rotary steam fire engine, ordered from

the Silsby Manufacturing Company of Seneca Falls, N. Y., report as follows:

That we have thoroughly examined the material, finish and construction of said steam fire engine, and find them first-class in every respect.

With regard to the working qualities, we would say that after submitting the machine to thorough and severe tests of several hours duration, her performance during the whole time was eminently satisfactory, she proving herself all that the manufacturers claim. It having been suggested that the rotary engine was liable to "heat" when doing continuous work, we determined to satisfy ourselves on that point, and after having run it under a pressure of steam sufficient for all fire purposes, for two consecutive hours, with that view, find that there is no danger of anything of the kind, the journals at the end of the test being as cool as they were twenty minutes after the machine was started.

We therefore unanimously recommend the acceptance of the apparatus.

R. LOCKE,
JAMES SMITH,
ORVILLE SEEBER,
Committee.

I certify the above to be a true copy.

W. M. KEITH,
Clerk Municipality of Smiths Falls.

We certify that the aforesaid Committee are all first-class practical mechanics, and thoroughly competent to give an intelligent report on any machine.

J. H. GOULD,
Reeve of Smiths Falls.
W. M. KEITH,
Clerk of Smiths Falls.

From the Chicago Tribune, June 26th, 1875.

OUR NEW FIRE ENGINE. THE LARGEST EVER PURCHASED BY THE CITY.

SATISFACTORY RESULTS OF THE LATE PUBLIC TRIAL.

The late public trial of the new first-class steam fire engine of the Silsby manufacture—the largest engine ever brought into the service

of the city, which came off Tuesday afternoon, at the corner of Michigan avenue and Madison street, in the presence of his Honor, the Mayor, the Fire Commissioners, a deputation of Aldermen, and a large concourse of prominent citizens, appears to have been attended with the most satisfactory results, and to have invested the new steamer with a considerable degree of public interest and curiosity, as a very important accession to our general system of protection against the perils of fire.

The public test indicated the fact that we now have among us an engine capable of throwing, with the moderate steam pressure of fifty to sixty pounds, a larger stream of solid water considerably above the extreme height of the loftiest buildings of the city, a feature of the trial that occasioned some astonishment, considering the small amount of steam required to do the immense work accomplished.

The throwing was as follows: First, through 300 feet of hose, $1\frac{1}{4}$ inch nozzle, distance 255 feet; second, through a double line of hose, 300 feet each, aggregating 600 feet, $1\frac{1}{4}$ inch nozzles, distance 205 feet 10 inches; third, one line of hose, 300 feet, $1\frac{3}{8}$ inch nozzle, 199 feet 10 inches; fourth, through 100 feet of hose and $1\frac{1}{4}$ inch nozzle, 251 feet.

The Fire Marshal deemed it unnecessary to bring out any other engine to compete in the test, and the throwing has never been equaled in the city. The new fire engine is not only an object of admiration as a splendid model of utility and power, but in point of mechanical design and proportion, and the attractive but subordinate feature of elaborate finish and ornament, is regarded as a magnificent piece of work, reflecting equal credit upon the taste, skill, and resources of the renowned establishment to which the city is so largely indebted for its now formidable fire equipment.

ABSTRACT

From the Minutes of the Council of the city of Winnipeg, Manitoba, at a meeting thereof on the 18th of January, 1875:

From report of Committee on Fire, Water and Light, adopted by the Council:

Your Committee have much pleasure in calling the attention of the Council to the good service done by the fire brigade and apparatus at the fire to-day in McDermot's block. The thorough efficiency of the Silsby fire engine and tanks as a means of protection against fire has been most satisfactorily proved; the engine having worked for over

two hours and a-half, throwing three effective streams, *with the thermometer over twenty degrees below zero.*

A true abstract.

A. M. BROWN, City Clerk.

I may state that the thermometer was at one time *thirty-two degrees below zero.* The engine worked until all danger was over, and could have worked as much longer as needed.

A. M. BROWN, City Clerk.

FIRE DEPARTMENT, ENGINEER'S OFFICE, }
TORONTO, Feb. 27, 1875. }

DEAR SIR:—Your letter of the 19th inst., addressed to his Worship, the Mayor of Toronto, asking for information respecting the Silsby engine, has been forwarded to this office to give the information sought.

In reply I beg to say that we have in the city four steam fire engines, all from the manufactory of Messrs. Silsby & Co., of Seneca Falls, N. Y. They all work very satisfactorily, and it costs but very little to keep them in repair. Some of them were purchased after competitive trials with other engines, and having seen several other kinds worked, I consider the Silsby engines the most reliable for the extinguishment of fires.

Your obedient servant,

JAMES ASHFIELD,
Chief Engineer Fire Department.

From the Watchman, St. Johns, N. B., Dec. 4th, 1875.

NEW STEAM FIRE ENGINE.

The Charlottetown *Times* contains a very complimentary notice of the new Silsby steam fire engine, recently purchased for the Island Capitol, and which appears to have given very general satisfaction. Our island friends appear to be exerting themselves in securing the most approved apparatus for protection against fire. The *Times* says: "Hillsborough" is the name given to our new steam fire engine, just imported from Seneca Falls, N. Y., for the use of the city. On Saturday last the new engine was tried, and found to be a great success. The first test was through 100 feet of hose, and in six minutes and ten

seconds from the time the fire was lighted under the boiler she commenced throwing water. The distance thrown through a $1\frac{1}{2}$ inch nozzle was better than 200 feet. The second test was two simultaneous jets through $\frac{3}{4}$ inch nozzles, and the distance thrown from each was 175 feet.

The third test was three jets at once, through $\frac{3}{4}$ inch nozzles; the distance water was thrown in this case was 150 feet. The fourth test was through 1,000 feet of hose. The engine was on Pope's (N. S. Co's) wharf. The rise to where the pipemen stood was nearly if not quite fifty feet, and through a one inch nozzle the engine threw water to the cross of the Catholic chapel—the cross being 197 feet above the level of the street. In this effort the "Hillsborough" had on a pressure of less than 100 pounds of steam. On Monday the capacity of the new engine for lifting water was thoroughly tested. She lifted the water through the whole length of her suction, (25 feet,) and forced it through 450 feet of hose, to the top of the spire of the Episcopal church. * * * * One excellent feature, and one showing the superiority of rotary machines over piston engines is, that the rotary engine stands perfectly still while the machine is in operation; and there is consequently no wear on the hose by friction, as is the case with piston engines.

GRAND RAPIDS, WIS., NOV. 17, 1875.

Silsby Manufacturing Company:

DEAR SIRs:—I have of late seen two papers, one noting the trial at Kent and the other at Danville, Ill. I am glad that the people in each place have the good judgment to purchase your machine; I know they will never regret it. I am still running the Clapp & Jones in this city, but intend to leave in the spring. We have just purchased 500 feet of new carbolized hose. These machines are hard on hose. At the test I wore two new sections nearly through, the action of the engine continually drawing them backward and forward through the sand and grit. It is utterly impossible for any hose to stand long with that motion. * * * * Hoping you may have good success, I remain

Yours truly,

A. W. GRAVES,

Engineer Steamer No. 1.

OTTAWA, ONT., June 12, 1875.

Silsby Manufacturing Co., Seneca Falls, N. Y.:

DEAR SIRs:— * * * * As a matter of news, we regret to have to inform you of the total destruction by fire on Sunday

morning last of our fine new saw mill, which was the occasion of our having had rather too practical a test of your pumps and our system of water works, and although we did not save any part of the mill or its contents, we did succeed in saving everything else; and had we not had the pump and water system, all our lumber yard would have gone. In fact, the pump did its duty splendidly; it even surpassed our expectations, and was the admiration of the numerous spectators who congregated at the time of the fire. The cause of the fire was and is unknown, but we had not yet our system complete with the hose on the hydrant, and before we could get these attached the fire in the mill got beyond control, and nothing short of the contents of a lake pouring into it could have put it out. We are,

Yours truly,

GILMOUR & CO.

BELLEVUE, OHIO, Nov. 5, 1875.

This is to certify that the following action of the Common Council of the incorporate village of Bellevue is a part of the proceedings at a regular meeting, held Nov. 5th, 1875:

"On motion of Councilman Smith, and seconded by Scullen, it was decided to purchase the Silsby steam fire engine, according to the proposal of the Silsby Manufacturing Company, of this date."

The above vote was carried by a unanimous vote of the Council.

H. T. BAKER,

Village Clerk.

MAYOR'S OFFICE, }
INGERSOLL, ONT., Sept. 27, 1875. }

Peter Craib, Esq., Woodstock, Ont. :

DEAR SIR:—I have received your letter of the 25th instant, enquiring about the workings of our fire apparatus, and have greatest pleasure in replying thereto.

The steam fire engine in use in this place is a Silsby, and was purchased from the Silsby Manufacturing Company, Seneca Falls, N. Y., in November, 1873. * * * * The engine gives entire satisfaction to the rate-payers and the Council, and I have no hesitation in recommending your Committee to report in favor of this engine.

Yours obediently,

C. H. GORKEY, Mayor.

FREEPORT, ILL., Feb. 4, 1875.

In 1867 we purchased a No. 2 Silsby engine, which has been in use ever since, and to-day is apparently as good as new for active fire service. Last fall, the growth of our city having been considerable, it was deemed expedient to procure another steam fire engine. Already having one Silsby, it was the general opinion of our Council and also of the members of our fire department and others, that we should procure some other make.

Being in Chicago in September as a Committee to inspect engines, and there having an opportunity of seeing all the different makes at work at competitive trials, I again became so favorably impressed with the Silsby that the result was the purchase of another engine of that make for our fire department. Not only was I individually thus favorably impressed with the superiority of this engine, but our whole city council present at said trial and subsequent ones, were likewise favorably impressed and could be induced to purchase nothing but the Silsby, though much more favorable terms were offered by the manufacturers of other engines. We saw the Silsby and other engines working side by side, and can conscientiously and without fear of contradiction state that for ease of motions, short time in getting up steam, wear on hose, and general utility, the Silsby is the best of them all.

JACOB KROHN, Mayor.

MAYOR'S OFFICE,
INCORPORATED VILLAGE OF TIPPECANOE CITY, OHIO, }
January 29, 1875.

To the Honorable J. B. Koontz, Mayor, and George Goldberg, J. W. Lease and LeRoy Campbell, Members of Council, Washington, Ohio :

GENTLEMEN:—Being informed that you are about purchasing a new steam fire engine for your village, and knowing the absolute importance of procuring the best engine, I venture to offer you a few items of advice, based upon our late experience in procuring a steamer for our village.

Our Council made the most extensive enquiries, and had an exhibition of a Silsby (our present engine, third size,) and a Clapp & Jones, (piston, second size,) in our streets, and after exhausting all further means of information on the subject within their reach, our council on the 15th day of July, 1874, adopted the following:

Resolved, By the Council of the Incorporated Village of Tippecanoe City, that after witnessing a full and satisfactory exhibition of the

steam fire engine, hose, &c., brought to our village by the Silsby Manufacturing Company, of Seneca Falls, N. Y., we are fully satisfied of its superior efficiency in the suppression of fires, over other steam fire engines within our present knowledge.

Our Council being unanimously satisfied on the following points in favor of the Silsby engine, to wit.: On its cost for repairs; on its steadiness of operation; on its low pressure of steam required to work her; on its efficiency in forcing water through long leads of hose; on its durability; on its pumps in throwing dirty or impure water; on the quantity of water thrown in any given time; on its great saving in hose; and on its beauty and workmanship of finish; finally, on its safety from freezing up in intense cold weather.

Which last point has been fully demonstrated in our village at the burning of the large Chaffee distillery, with many hundred barrels of whisky, on the morning of January 5th, 1874, on which occasion the thermometer at this place stood at two degrees below zero, and in eleven minutes our Silsby fire engine was passing water on the fire through two lines of hose, direct from the engine, eight hundred feet each, and continued the same without a moment's stoppage, for four hours and twenty minutes, without freezing, and after returning her to the engine house and cleaning her up, she is now as beautiful and nice as the day she was first brought here.

All things considered, I have no hesitancy in recommending the Silsby fire engine in preference to all others. Hoping you may meet with success in your undertaking, I am, with respect,

Yours truly,

E. T. SHIELDS,
Mayor Tippecanoe City, Ohio.

From the *Miltonian*, Milton, Pa., January 28th, 1876.

A STEAM FIRE ENGINE AT LAST.

Arrival and Trial of a No. 3 Silsby--Its Purchase by the Borough, and is therefore named

"THE MILTONIAN."

* * * * *

THE FIRST TRIAL.

Five hundred feet of hose was run out and attached to the engine. The match was applied, and in one minute the steam gauge com-

menced moving; in three minutes, there were eight pounds of steam; in four minutes, twenty pounds; in five minutes, thirty pounds, and in six minutes commenced throwing water. The engine worked admirably, throwing a stream through a $1\frac{1}{4}$ inch nozzle, thirty feet over the Lutheran church steeple, which is 180 feet high, and this, too, in the face of a heavy wind from the west, directly against the stream.

Nearly everybody was satisfied with this trial, but some feared that the steamer would not do so well when placed on the river bank, with a rise of thirty feet to contend against in addition to the length of hose required; so it was decided to have a

SECOND TRIAL

On Saturday. Accordingly, on that day the engine was stationed at the Walnut street landing, the hose brought down the river to the Broadway landing, and thence taken to Front street to the Huff house, requiring 700 feet. A $1\frac{1}{4}$ inch nozzle was attached, and in a few minutes a stream was thrown at least forty feet over the top of the flag staff on the Huff house, showing conclusively that the engine did as good work when down on the river bank, thirty feet below the street, as when on a level. So to give a still further test, a Y was put on and two streams were thrown, and they were thrown as high as the one stream had been.

This satisfied everybody as to the capacity of the engine, and the unanimous opinion was that the Council should purchase it. And this conclusion was not reached solely on account of the work done by the engine at the trials here; there are several of the same make in use in the towns in this vicinity, and they have given universal satisfaction. Our citizens were all familiar with the work they were capable of doing, and nearly everybody was in favor of the Silsby. The other makers of steam fire engines had been invited here to compete with the Silsby, but did not come. Whether they feared to enter into competition or not, we cannot say. But whether they did or not, our people are perfectly satisfied with the Silsby, and when we want another, as we probably shall one of these days, we know where to go.

MONROE, LA., Feb. 26, 1876.

Messrs. Silsby & Co. :

DEAR SIR:—We had a severe fire here on the 25th of last month. It occurred in a brick block, the middle of three buildings. The centre building had a large quantity of gun powder on hand, which made a tremendous explosion, wounding several firemen and citizens; yet, by perseverance and your magnificent steamer "Pride of Monroe,"

we saved both sides of the block. The fact is, the more we work your engine the better we like her. I'll venture to say she has paid for herself ten times over.

Wishing the company all the success they deserve, I remain

Yours respectfully,

WILLIAM H. FERRY,

Foreman Ouachita Fire Co. No. 1.

HALL OF VICKSBURG FIREMEN'S ASSOCIATION, }
VICKSBURG, MISS., March 21, 1876. }

Silsby Manufacturing Company, Seneca Falls, N. Y. :

GENTLEMEN:—I suppose you have heard all of the particulars of the burning of the steamboat "Mary Bell," at our landing, on the evening of February 29th, and I thought perhaps you might wish to know how our Rotaries acted on that occasion. I assure you that no engines could have done better, and few could equal them, in the amount of water thrown on that boat. The river was very high, and consequently very muddy, and the engine worked as clear and as easy as most others could with pure, clear cistern water. The "Phoenix" worked six hours and the "Constitution" eight, and the "Washington" eighteen; and when each was taken away, it was ready for fire duty again within five minutes. Having plenty of fuel and the river to take suction from, the three steamers were not spared; they were put to their fullest test. That day demonstrated that there is no engine for effective fire duty as good as the rotary. We had a little brush with a fire on the 3d, and while at that fire another broke out in a different part of the city, but we put both of them down in a short time. The citizens of Vicksburg have never regretted the appearance of the rotaries here, from the time the old "Phoenix," the first one, was brought, in 1867.

Wishing you and your engines all success, I remain,

FRED. LOYD,

Chief Engineer Vicksburg Fire Dept.

OFFICE OF SAGINAW WATER WORKS, }
SAGINAW, MICH., April 3, 1876. }

Mr. Silsby :

DEAR SIR:—Having received through Mr. G. L. Burroughs, our Chief of Fire Department, your descriptive circular for 1872, and

having read some of the letters in it from Engineers and Chiefs of Fire Departments in different parts of the country, giving accounts of these engines and their workings, I thought that I would give you a little history of one, and if it contains merit enough to put before the public, you can use it if you wish. We have had our engine, a third size, a little over eight years. For the first five years it was in constant use, often running from 18 to 38 hours at a time. Three years ago we got the Holly Water Works, and since that time it has been used but very little, until the 17th of February, when we were called out to St. Charles, a town fourteen miles from here, where a big fire was raging amongst some 5,000,000 feet of lumber. Our engine had not been used for over a year, and ten minutes after we got there it was working handsomely, throwing two streams, which were kept going 27 hours without a stop, when, having no one to relieve me, I was obliged to pull up and go home. The next day they sent for me again, as the fire had broken out afresh. This time the machine ran 78 hours; and all this was done after the machine had been lying idle for over a year, without a particle of fixing or work of any kind being done on it. All it had cost for repairs up to the time we were called to St. Charles was \$18.

Your obedient servant,

F. G. CLIFTON,

Chief Engineer and Engineer Steamer.

P. S.—I forgot to state that we have never been delayed at a fire, or when an alarm was sounded, by anything giving out or being out of repair.

F. G. C.

HALL OF UNION HOSE CO.,
OTTAWA, ILL., April 10, 1876. }

Silsby Manufacturing Company, Seneca Falls, N. Y.:

DEAR SIRS:—Thinking that you would like to hear how our two engines, the rotaries, are getting along: I think that we have the two best engines in the State for their size, one light and one heavy. We run the new machine, "No. 1," which is the light one, at the burning of the third ward school house, on the night of March 27th, for six hours. The mud was so deep that the grates rested in it, and before we could get space enough for draft under them we burned out five bars, but the machine run five and a-half hours with the grate in that shape, and forced water through 1,800 feet of hose, and worked as steady as a clock, and made steam so easy that we had to run with the door open part of the time. The boiler is of the improved style, and will make steam fast enough for an engine one-half larger than the

one on the machine. I would not exchange our "No. 2" for any third class engine on wheels. There is no engine as good as the rotary for fire purposes, for they are right with you all the time. The nickel plated jacket is the "boss" jacket, after all.

Yours respectfully,

T. C. LOGAN,
Engineer Steamer.

CENTRAL ENGINE HOUSE, }
DELAWARE, OHIO, April 9, 1876. }

Silsby Manufacturing Company:

GENTLEMEN:—Our two rotaries have just done one of the biggest jobs they have ever been called upon to do in the city. About nine o'clock on Friday morning, the 7th inst., an alarm was turned in from the female college. We went there, and found the entire attic of the south wing of the building in flames, and just breaking through the roof in the east wing. In seven minutes from the time we left the house, we had a stream from the "W. E. Moore" on it, and in about three hours we had the fire out. The building is four stories high, and the tower about eighty feet. The wind was blowing furiously from the south-west and set the top of the tower on fire, and then the people said, "Good-bye college!" But we had the "Moore" on one side and the little old "Delaware" on the other, and the fire stopped just there. We played through 1,000 feet of hose, up a forty foot hill, to the top of the eighty foot tower, and it took three good men to hold the pipe. The stream broke out windows, took off shingles, knocked off doors, etc., with a water pressure of from 90 to 100 lbs., steady and solid—not a particle of air. The result was, we saved all but the roof of the south wing and the roof of the tower. The damages are estimated at \$5,000; building worth from \$50,000 to \$60,000; a saving to the city of from \$45,000 to \$50,000; about four times the cost of the engines. How do you like that? The engines worked like a charm; at no time did they let up. If they had failed us five minutes the whole building would have been lost, and if it had been I doubt if it would have ever been rebuilt. After the fire was out we set the "Moore" down the hill to the creek, and through 800 feet of hose, up a hill 80 feet high, we filled a 700 barrel cistern in one hour and five minutes. If any other machine can do that, I would like to see it. The people were nearly wild, and full of praise of the Silsby rotary.

Respectfully,

GEORGE H. AIGIN,
Engineer Steamer "W. E. Moore," No. 2.

OFFICE CHIEF ENGINEER FIRE DEP'T, }
 NEW ALBANY, IND., April 19, 1876. }

Mr. John C. Young :

DEAR SIR:—Your note of the 17th inst. is at hand, and in reply thereto I would respectfully say that we have three engines in service here, two Silsby rotaries and one piston. The "Washington," a piston engine, has been in service eleven years, and during that time she has cost us as much for repairs as her original cost, while the "Jefferson," No. 2, a rotary engine, has done the same service, and has cost us comparatively nothing for repairs. The "Sanderson," a rotary engine, has been in service four and one-half years, and during four years of service her repairs did not exceed ten dollars. When our city concluded to purchase the third engine, they bought another rotary on account of their being the most preferable. There is one very important thing in running a rotary as well as a piston engine, and that is to have a good, competent engineer. As far as my opinion in regard to engines is concerned, I would frankly say that I would prefer the rotary all the time for fire duty, as I have always found it the most reliable in time of fire. The old rotary of ours has always given entire satisfaction, both to myself and the citizens, and I would also say that at a large fire in this city some seven years since, the piston engine shut down in a few minutes after she commenced working, while the rotary worked for fifteen hours without stopping, except when we were compelled to change to another cistern.

Yours, &c.,

WILLIAM MERKER,
 Chief Engineer.

GREENCASTLE, IND., April 24, 1876.

Silsby Manufacturing Company, Seneca Falls, N. Y. :

GENTLEMEN:—I sent you by this morning's mail the *Banner* and *Press* of our city. Our "W. D. Allen" is covering herself with glory. She works splendid, and made more friends last Sunday, April 16th. We had two streams going through about 500 feet of hose—emptied two cisterns of 500 and 700 barrels each. Sparks were carried by the wind three squares, but by heroic work we saved large frame buildings from six to eighteen feet from the church. The beauty of our steamer is that she works so perfect and has never burst any hose yet. I think there is a growing feeling to sell the chemical engine and buy another steamer; and if so, you will hear from us.

Yours, &c.,

JAMES McD. HAYS,
 Committee on Fire Department.

POUGHKEEPSIE, N. Y., April 21, 1876.

Messrs. Silsby :

GENTS:—Having heard that there is a report in circulation that we wished to dispose of "Cataract Steam Fire Engine No. 4," built by you in 1860, I wish to inform you that there is no truth whatever in the report. We are perfectly satisfied with the engine and always have been; it does its work well and can be relied on, as its repeated trials have proven, and I consider it the best engine in use for fire purposes.

The report that we wished to sell may have originated from the fact that we have a first-class Button engine for sale.

Respectfully yours,

E. W. THURBER,

Chief Engineer.

CHESTER, PA., April 23, 1873.

Silsby Manufacturing Company :

GENTS:—We had a fire last night at one of our sash mills, which would have all burned out if our steamer had not got there when she did. The steamer is a great favorite amongst the boys and citizens generally here. We have had several fires of late, and she has done excellent service.

I remain, respectfully yours,

JOHN L. PENNELLE,

Secretary Franklin Fire Co. No. 1.

JACKSON, OHIO, May 1, 1876.

Silsby Steam Fire Engine Company :

DEAR SIR:— * * * * *
The engine works well, and never fails to do her duty. I think that they are the best engines made. I say that there are none so good.

Yours truly,

J. H. ANDRES,

Engineer Steamer.

From the Smiths Falls, Ont., News, May 5th, 1876.

FIRE.

On Tuesday morning last the grocery and liquor store of Messrs. Harrison & Urquhart was entirely consumed by fire. Occurring about

two o'clock, when the village generally is wrapped in slumber, the flames had gained such headway before being discovered, that the building could not be saved. The Silsby steam fire engine was at work within twelve or fifteen minutes after the alarm was rung, and doing splendid execution, pouring two heavy streams of water upon the burning building and its surroundings. The whole place was a perfect tinder box, and one of the most dangerous for the spread of fire in the village. On each side were buildings a short distance off, with stacks of dry stove wood between; in the rear it communicated with a hay loft, and this again communicated with other buildings straggling along, sufficient to endanger the whole block. There was also a profusion of coal oil barrels, empty and full, and other material almost as inflammable as gunpowder. Tremendous exertions were therefore required to confine the fire to the burning building. The drenching process was continued unremittingly for over two consecutive hours, and during this time the roof and window frames of Armstrong's hotel, or the adjoining woodpile would blaze up from the intense heat. A well directed stream as often quenched the flames. The gable of Mrs. Caswell's dwelling house got slightly scorched, and the roof and one or two windows of Armstrong's hotel got somewhat damaged. Between three and four o'clock the flames were completely subdued, and all danger over. To look at the ruins and the surroundings, it seems astonishing how the fire could have been cut off as it was, and helps one to realize the deluge of water which must have been applied. How the fire originated is unknown. This fire is another instance of the wisdom of our city fathers in investing in a first-class machine like the Silsby. It was felt on Tuesday morning that she had earned her purchase money several times over.

MILTON, PA., May 9, 1876.

Silsby Manufacturing Company:

GENTLEMEN:—We were called to Williamsport at their late fire on Sunday night. We got there about 12:30 o'clock, and played until six o'clock. We had a lift of about nineteen feet; one line of hose of 500 feet with 1½ inch nozzle, and one line of 550 feet with one inch nozzle. We can safely say that we were second to none. There were three Silsbys, two Amoskeags, and one Clapp & Jones, and they gave us the credit of throwing the two best streams on the ground.

We are not afraid to run along side of any steamer in this section of the country. * * * *

Very respectfully yours,

C. C. McKEE.

FIRE DEPARTMENT HEADQUARTERS, }
TOPEKA, KAN., May 13, 1876. }

Silsby Manufacturing Company, Seneca Falls, N. Y.:

GENTLEMEN:— * * * * *

Our little rotary, after seven years of active service, works better now than ever.

Very truly yours,

GEORGE O. WILMARTH,
Chief Engineer.

ST. CLAIR, MICH., July 6, 1876.

Mr. H. C. Silsby:

DEAR SIR:—I send you a few sketches of our fires. At the last fire we had here I worked my engine nine hours without stopping once. I have been out several times to fires, and find the engine just as good as ever.

Respectfully yours,

WILLIAM F. LEACH,
Engineer Steamer No. 1.

From the *Ilion Citizen*, Ilion, N. Y., Friday, May 19th, 1876.

THE NEW STEAM FIRE ENGINES.

The second of the new steam fire engines purchased by our village trustees from the Silsby Manufacturing Company, Seneca Falls, N. Y., was delivered on Friday morning last. In size and general construction it is the same as the one previously received. They are both No. 3 engines, beautifully constructed and finished, and are plated with nickel over all exposed metal parts. This gives them a highly finished appearance and prevents rusting. They each have a capacity of five hundred gallons per minute.

This engine (No. 531, manufacturers' number) was tested on Friday afternoon, and worked splendidly. An inch stream was forced through two hundred feet of hose and thrown far up above the tallest buildings, and many feet higher than the top of the smoke stacks belonging to the works. Then 1,000 feet of hose was attached and laid to the top of Armory Hill, something like one hundred feet elevation above the engine, and at that point it threw an inch stream of water higher than the tallest houses. This was effected with an average steam pressure of only seventy-five pounds. A piston engine, to do

the same work, would require from thirty to forty pounds higher pressure; the advantage in this respect is, of course, all on the side of the Silsby engines.

The result of the test last Friday was eminently satisfactory. With two engines capable of doing such work, we have little to fear from fire, for they would soon deluge any building, and fearful souls can well sleep more soundly than formerly.

An experience of twelve years with a Silsby engine of the old pattern, has fully satisfied our town authorities that they were doing the wisest thing in procuring the new engines of the same company, and in that they are fully sustained by the opinion of the people in a town whose male population is largely made up of skilled mechanics.

Some things are worthy of mention here. The new engines have this feature in their construction: they are built in the "crane neck" style, so that they can be turned around in a space equal to their own length. Then, the remarkable results already mentioned as achieved in last Friday's test, were produced by a pressure equal to only about one-third that to which the boilers have been subjected. All the modern improvements are used in these engines, and they are, we judge, possessed of excellencies sufficient to meet the wishes of the most exacting.

MUNCY, PA., May 22, 1876.

Silsby & Co.:

DEAR SIR:— * * * * On Sunday forenoon, May 7th, 1876, Williamsport sent an engine here for our steamer. We arrived on the ground and went to work at 11:45 o'clock, worked for five hours side by side with the big piston engine, and never stopped during that time.

She won praise from all parties for the good work she did there. Our boys feel prouder of her every day.

Yours truly,

J. I. PAINTER,

Foreman Vigilant Fire Co. No. 1.

The following dispatches were received by Mr. Flack, in reply to his, asking if the Silsby Steamers in the several places named gave good satisfaction:

SMITHS FALLS, ONT., June 13, 1876.

D. A. Flack, Fire Committee, Cornwall, Ont.:

Silsby engine gives perfect satisfaction.

F. L. FROST, Reeve.

STRATFORD, ONT., June 14, 1876.

D. A. Flack, Fire Committee, Cornwall, Ont. :

Yes, every satisfaction.

T. M. DOLES.

GUELPH, ONT., June 14, 1876.

D. A. Flack, Fire Committee, Cornwall, Ont. :

Our Silsby engine has been in use about eight years and has never failed to give unqualified satisfaction.

R. MELSON, Mayor.

SHERBROOKE, QUE., June 14, 1876.

D. A. Flack, Fire Committee, Cornwall, Ont. :

Silsby engine gives entire satisfaction.

E. CLARK,

Mayor and Member of Fire Committee.

BERLIN, ONT., June 14, 1876.

D. A. Flack, Fire Committee, Cornwall, Ont. :

Yes.

H. KROUS.

TORONTO, ONT., June 14, 1876.

D. A. Flack, Fire Committee, Cornwall, Ont. :

Yes, every satisfaction; best here.

RICHARD ARDAGH,

First Assistant Engineer Fire Department.

OSWEGO, N. Y., June 14, 1876.

D. A. Flack, Fire Committee, Cornwall, Ont. :

The Silsby engines we use give good satisfaction.

GEORGE W. WARSOP,

Chief Engineer.

GODERICH, ONT., June 15, 1876.

D. A. Flack, Fire Committee, Cornwall, Ont. :

Silbsy fire engine entirely satisfactory.

J. H. FINDLAY, Mayor.

OWOSSO, MICH., July 10, 1876.

Silbsy Manufacturing Company :

GENTS:— * * * * We were alarmed for fire last Saturday night about midnight. The fire was in the cellar of a grocery store in the block south of the National hotel. We drowned the thing completely. If the fire had not been stopped it would have been a bad one for the town. The general expression is that the Silbsy engine had that night more than saved its cost to the town, saying nothing of individual losses. The engine never worked better than it did last Saturday night. The people here are well satisfied. They say it was not eight minutes from the first cry of fire, that the water was on the fire in two $1\frac{1}{2}$ inch streams. * * * *

WALTER A. OSBORN,

Engineer Steamer.

OTTAWA, ILL., July 13, 1876.

Silbsy Manufacturing Company :

GENTS:—Having had a display of our steam fire engine on the 4th inst., for the benefit of the public at large, I will give you the result.

I started the "M. H. Swift, No. 2," a light third size engine, with two lines of leading hose, each 350 feet in length, with one inch nozzles, stream reaching 225 $\frac{1}{2}$ feet.

2d Test. Single stream $1\frac{1}{2}$ inch nozzle, same length of hose, throwing a distance of 250 feet.

3d Test. Three streams, $\frac{3}{4}$ inch nozzles, same length of hose, throwing a distance of 219 $\frac{1}{2}$ feet, with a steam pressure of 110 pounds. We did not measure within ten feet of the spray, which was 260 feet from the nozzle.

How is that for a small engine?

Yours,

T. C. LOGAN,

Engineer Steamer.

ISHPEMING, MICH., July 21, 1876.

Silsby Manufacturing Company :

GENTLEMEN:— * * * * I am happy to inform you that this engine has been in use 21 months, and it has not cost the city one cent for repairs, and we have always succeeded in putting out every fire since she came here.

Yours,

PETER OUDEKIRK, Engineer.

From the News, St. Johns, P. Q., July 21st, 1876.

OUR NEW FIRE ENGINE.

One of the most important events in the history of our good town took place on Monday. All our public spirited citizens, with hardly an exception, and even one or two of the so-called "Narrow Gaugers" turned out to witness the performances of our new Silsby fire engine.

The trial made of it was certainly under most fair and satisfactory conditions. Mr. J. C. Weir, chief engineer of the Ottawa and Rideau Navigation Company, an authority whom it would be of no use to try to deceive, and whose integrity is above suspicion, had been with shrewd forethought induced by Captain Jones to come down and critically and professionally report on the exact results obtained. After his concise and intelligent information, we vouch for the following facts:

Fire was lit at twenty-two minutes past three o'clock P. M. In $4\frac{1}{2}$ minutes there was ten pounds of steam on; twenty pounds in $5\frac{1}{2}$ minutes; thirty pounds in $6\frac{1}{2}$ minutes. In $6\frac{1}{2}$ minutes water supplied a stream through a $1\frac{1}{4}$ inch nozzle. In eight minutes from the time of putting the match to the fire in the engine, there was fifty pounds of steam on; in $8\frac{1}{2}$ minutes sixty pounds; in $10\frac{1}{2}$ minutes seventy pounds; in 11 minutes eighty pounds; ninety pounds in 12 minutes, and 100 pounds in $12\frac{1}{2}$ minutes.

When there was eighty pounds of steam on, or eleven minutes after the fire was lit, that is to say at thirty-three minutes past three o'clock P. M., there was water flowing from two hoses, with a pressure of 125 pounds on each.

The capacity of the engine is five hundred gallons per minute. The steam pressure was brought up to 120 pounds, and for an hour and a-half the engine worked at this pressure as smoothly as a watch. At the second trial on Tuesday morning, with ninety pounds of steam the Silsby ejected a stream through 400 feet of hose and $1\frac{1}{4}$ inch nozzle.

zle, 245 feet against the wind. Connecting with the hydrants near Dr. Wight's, with 85 pounds of steam, she threw a stream over the cross of the Roman Catholic church, 170 feet in height, against a pretty stiff west wind. These and other trials made through lengths of hose varying from 100 to 2,000 feet so completely satisfied the fire brigade and the general public, that the corporation at a meeting on Tuesday ratified the purchase.

Below we append the official reports of Captain Jones and Engineer Weir:

ST. JOHNS, P. Q., July 18, 1876.

To the Mayor and Council of the Town of St. Johns:

GENTLEMEN:—Having been called upon by you to test and examine the No. 2 Silsby fire engine, purchased from the Silsby Manufacturing Company, of Seneca Falls, N. Y., upon conditions that she stand any test you might think proper to put the machine to, I would therefore beg to report that in about four hours after the engine was landed from the cars, Mr. Teller, the engineer who accompanied the machine, reported that he had the works together and was ready for trial. At about three o'clock P. M. on Monday we placed the engine at the river, and in $6\frac{1}{4}$ minutes from the moment the fire was lighted, there was thirty pounds of steam, the engine put in motion and water forced through the hose.

From the moment of starting until the trial ended, (the time being three hours and forty minutes,) the machine was kept hard at work without a moment's stoppage to add or remove lines of hose nor for any other cause. From the engine the hose was in each case laid up hill and in the following lengths:

| | | | | |
|---------------|-----------|-------|---------------------|------------------|
| 1—One line of | 100 feet, | using | $1\frac{1}{4}$ inch | nozzle. |
| 2—Two | “ | 300 | “ | $1\frac{1}{8}$ “ |
| 3—Three | “ | 300 | “ | $\frac{7}{8}$ “ |
| 4—Two | “ | 1000 | “ | 1 “ |
| 5—One | “ | 1000 | “ | $1\frac{1}{4}$ “ |
| 6—One | “ | 2000 | “ | $1\frac{1}{8}$ “ |

From each and all of these lines there was a very powerful stream of water thrown at long distances.

This morning we had another trial, with equally good results. The engine forced through 400 feet of hose, up hill, a $1\frac{1}{4}$ inch stream 245 feet solid water. The trial to-day was about three hours. We stopped of our own accord on both days, as Mr. Denne, the agent, and Mr. Teller wished us not to discontinue until we were perfectly satisfied. I will here remark that I took it upon myself to bring from Montreal Mr. J. C. Weir, well known as one of the best engineers in Canada, to watch the engine during the trial. From his report, which is here-

with submitted, and from what I consider a pretty severe test for the length of time we were at it, I feel quite safe in saying that I believe the machine capable of doing good work as a fire engine, and would recommend you to accept it.

Yours respectfully,

L. JONES, Chief Engineer.

ST. JOHNS, P. Q., July 18, 1876.

To the Chief Engineer, Fire Department, St. Johns :

SIR:—At your request I attended a trial of the Silsby fire engine, furnished by the Silsby Manufacturing Company of Seneca Falls, N. Y. The steamer is on the rotary principle and, I think, called the Holly engine.

About three o'clock P. M., July 17th, the engine was taken from the house to the river side, and in $4\frac{1}{2}$ minutes after the torch was applied to the fuel the steam gauge indicated ten pounds pressure; in $5\frac{1}{2}$ minutes twenty pounds pressure; at $6\frac{1}{2}$ minutes thirty pounds pressure, at which time the engine was started and kept running until the test was finished, steam steadily rising to 100 pounds in $12\frac{1}{2}$ minutes after lighting the fire. The trial lasted three hours and forty minutes, during which time the engine seemed to do its work very satisfactorily. In fact I cannot point to any part of machinery or boiler that showed any deficiency in its operations. There was no heating of bearings.

The following day there was a trial of about three hours, with the same results as on the following day. The water passed through the hose quite steadily, leaving the nozzle in a solid stream without any spurts or indications of taking air. I am therefore of opinion that the machine will do you good service as a fire engine.

Yours truly,

JAMES C. WEIR,

Supt. Engineer O. R. F. Co., Montreal.

ST. JOHNS, P. Q., Aug. 15, 1876.

Silsby Manufacturing Company :

DEAR SIR:—We had a regular fire here on Sunday last, at 10:30 A. M., and at quite a considerable distance from the river and 1,200 feet from the nearest hydrant. The turnout of our young brigade was a pretty quick one. Happily the water works could give us a fair supply, and I must say that your engine did all that was expected of her, on a 1,200 feet length of leading hose. The fire was in a dry wooden building, which was burned to the ground, from the fact that the

alarm was sounded so late. The next house was saved. A splendid $1\frac{1}{4}$ inch stream was thrown from 1,200 feet of hose on the fire, which lasted about an hour and a quarter. People heartily approve of the purchase made by our committee.

Yours truly,

STANISLAS COTE,

Secretary and Treasurer.

From the Lansing, Mich., Journal and Republican, July 27th, 1876.

ROTARY vs. PISTON.

THE LANSING HOUSE ON FIRE. SAVED BY THE SILSBY ENGINE.

CLAPP & JONES MACHINE FAILS TO WORK.

On Saturday forenoon about 11 o'clock, a small barn just west of the Lansing House was discovered to be on fire. The alarm was immediately given, but in less than five minutes this light wooden building was a sheet of flame.

From this barn a wood-shed ran nearly to the street on the north, and connected with Marks' livery barn on Washington street, just west of the Lansing House. An attempt was made by the citizens to tear away the wood-shed, but the heat was so great from the burning building that those engaged in the work were obliged to retreat. This left Marks' livery barn to the mercy of the flames, and but a few minutes elapsed before that also was on fire. A strong wind was blowing from the west at the time, and the heat from the two buildings set the window casings of the Lansing House on fire. All this occurred within a few minutes, and it then seemed as if that fine hotel must be a sacrifice to the flames.

Carriages and horses were removed from Marks' livery barn, and the removal of furniture from the hotel also commenced. Thousands of people had congregated, and the most intense excitement prevailed.

While these scenes were being enacted, the Silsby steamer "Fire King" had taken position in the old capitol yard. It soon had two streams playing on the fire on the west side of the building, while the citizens from the east entrance used their pails to good advantage.

The Clapp & Jones engine came on the ground at a rattling pace, and took position at the cistern just south-east of the Butler block; but from a derangement of the packing, and presence of gravel in the valves, she was unable to do any work. The men who had charge of

her did all in their power, but utterly failed in their attempts while the fire was raging. After spending upwards of half an hour in trying to draw from the cistern, that engine was removed to the river.

About this time the water gave out in the cistern in the State-office yard, and the Silsby engine was removed in double quick time to the cistern which the Clapp & Jones engine had left. Hardly three minutes elapsed before the Silsby had two streams of water playing into the east side of the building. The smoke had commenced to drift through, and was pouring out of the east windows.

When the Clapp & Jones engine failed to work, it seemed as if nothing could save the Lansing House. Clear headed men now saw that if the flames should burst from the roof, then the buildings on the east side of Washington street would take fire, and the Grand river would be the only boundary of the conflagration.

A gentleman rushed to Mayor Tooker to apprise him of the danger, and to induce him to telegraph to Jackson for aid. "I sent a dispatch half an hour ago," replied the worthy official, "and we shall have help within half an hour."

After the Silsby engine changed its position and commenced playing, it soon became evident that the firemen were gaining control of the flames, and the only question was whether the brave fellows could stand the suffocating smoke. Floods of water were sent into the hotel, and step by step the flames were beaten back.

The Jackson train arrived at the depot, but word was sent to the boys to leave their machine (a Silsby) on the train and come to the Chapman House. They came, and of course had their dinner. In just ten minutes from the time Major O'Donnell received Mayor Tooker's dispatch the fire engine was on its way to Lansing, and Ed. Sellers, the well known conductor on the J. L. & S. railroad, and engineer Shout, were the men who brought the firemen and the machine from Jackson in 49 minutes, a distance of 37 miles. Conductor Sellers had passed this city at 10:58 on his train southward bound. He saw the smoke and was told the Lansing House was on fire. He ran his train to Jackson in one hour and fifteen minutes, and as he stepped off, Superintendent Bush told him to go to the office and get orders for a wild train to Lansing. Ed. always obeys orders, and in less than fifty minutes he was back in Lansing.

During the conflagration Mayor O'Donnell telegraphed Mayor Tooker that a steam fire engine was on the way, and if anything more was needed to command him. Our Jackson neighbors deserve great credit for coming so promptly to our aid. The Jackson firemen were in charge of Chief Engineer Lake.

While the fire was in progress the scene outside and inside the Lansing House beggars description. Windows were smashed in; trunks were lowered to the sidewalk by means of ropes; pillows, mattresses and bed-clothing filled the air; and chairs, tables, bureaus, car-

pets, pictures, vases and a hundred other things found their way to the State House yard. Never did we see the firemen or citizens show a greater degree of willingness to save property than on this occasion.

SCRANTON, PA., July 27, 1876.

Mr. Wm. Osborn, Phillipsburg, N. J. :

DEAR SIR:—I have your letter of yesterday, asking my opinion of the Silsby rotary steam fire engines. In reply I would say, that though not a fireman, I have had opportunities of observing the workings, &c., of several different makes of engines, and think the rotary the best for several reasons:

First, The steam pressure need be only about one-half the water pressure in the pump, which you know is good for the boiler and adds to its durability.

Second, They raise water quickly; the pump does not require priming, which is important when the water has to be sucked up to the pump.

Third, Their durability.

I will add that before writing I have talked with Mr. Page, the chief engineer of the fire department of this city, upon this subject, and he fully confirms my opinion. There are four steamers in this city, two rotaries and two reciprocating engines and pumps, and he says the rotaries are the best, the most efficient, &c. One of the rotaries has been here two years and worked at seventy-six fires; has never been out of order or cost one cent for repairs.

I will conclude by saying that if it were left to my judgment to select a steam fire engine, I should choose a rotary.

Yours respectfully,

WALTER DAWSON,
Master Mechanic D., L. & W. R. R.

SPRINGFIELD, ILL., Aug. 24, 1876.

Silsby Manufacturing Company :

SIRS:—I have charge, as engineer, of one of your steam fire engines, "Silsby," No. 2. I will first say that it has been in service eight years, and we can do as good work with it now as with any fire engine made. I took charge of this machine two years ago, at which time she was nearly condemned as worthless on account of bad manage-

ment, but since I have taken hold of her I have raised her again, being a mechanic by trade, and having my little shop half a block from the engine house. I have repaired the engine so it can compete with any engine of her class. I have lately been out twice, and our last throw, with 100 pounds of steam and $1\frac{1}{2}$ and $1\frac{1}{4}$ inch nozzles, was from 250 to 260 feet, against the new Button engine, which threw 228 feet. * *

Yours truly,

JULES COTTEL,

Engineer No. 2.

From the Warren Democrat, Phillipsburg, N. J., Aug. 31st, 1876.

THE TRIAL OF STEAMERS.

Last Tuesday afternoon, the time fixed for the trial of steam fire engines by Council, shone brightly, and save a rather high wind, which was unfavorable for testing the distance of the streams thrown by the engines, everything was as near right as could be wished for.

At one o'clock the engines, the Warren, owned by the old members of the Warren Fire Company, and manufactured at the Allerton Iron Works, which establishment we believe is no more, and the Silsby, manufactured by the Silsby Manufacturing Company of Seneca Falls, N. Y., were the only two engines entered, and they were promptly on the grounds, and after the preliminaries had been arranged, (which, by the way, it took a considerable time to do,) Mayor Titus held a lighted torch, and at the word "ready," fireman Burns of the Warren and fireman Wycks of the Silsby, lighted their waste at an equal distance from either engine and the trial commenced.

In one minute and a-half from the time the smoke issued from the stack of the Silsby, the steam gauge marked five pounds of steam; in three minutes ten pounds; and in five and one-half minutes thirty-five pounds; in six and a-half minutes it forced water through 250 feet of hose a distance of 100 feet. The Warren raised thirty pounds of steam in seven and a-half minutes.

When the Silsby engine was started a crowd of engineers, mechanics and others flocked around the machine to see her work, and such ejaculations as "Ain't she a bird?" "That's the kind of an engine the town needs!" "Look at that stream!" &c., were heard on every hand. Little knots of citizens gathered here and there on the grounds, and expressed their delight with the workings of the Silsby, and it was apparent from the talk of those present that the engine was all that was represented, and more.

The Warren steamed slowly, and it was fully six minutes behind the Silsby in getting water through hose.

The first stream thrown was through 250 feet of rubber hose, the Warren taking $1\frac{1}{4}$ inch nozzle and the Silsby $1\frac{1}{4}$ inch nozzle. The Silsby distanced the Warren by several feet in this test.

The second test was through 100 feet of hose, each steamer having two streams, the Warren having one $1\frac{1}{4}$ inch and one $\frac{7}{8}$ inch nozzle; the Silsby having two $\frac{7}{8}$ inch nozzles. In this test the Silsby was away ahead of its competitor, and brought out round after round of applause from the assembled multitude.

In both perpendicular tests with one and two streams, the Silsby as before was the "boss." The third test was made by the Silsby alone throwing three streams through 100 feet of hose to each pipe, with $\frac{3}{4}$ inch nozzles, which proved very satisfactory.

The fourth test was made by the Silsby and Warren, the Silsby having been given the privilege of the start on account of the connections, and threw four streams. The same connections were then transferred to the Warren steamer.

In every test the Silsby showed superior qualities. At no time did the steam gauge show over ninety-six pounds of steam, and while running at lightning speed, and under a very heavy pressure, she stood as still as a stationery engine, everything about it working as smoothly as a chronometer watch. The hose while being played through lay as still as the earth itself, and felt to the touch as solid as a rock.

The steam gauge of the Warren marked from from 110 to 140 pounds during the trial. She weighs 7,300 pounds, over a ton more than the Silsby.

The test was a fair one, and the new machine won on its merits. The Mayor and Common Council of Phillipsburg witnessed the trial in a body, and there was a general outpouring of the people of the town to see the trial. Prominent among the strangers present we noticed Charles Cook, Chief Engineer of the Newton Fire Department, and William Ache, Chief Engineer of the Bethlehem Fire Department. There were also committees present from Allentown, Mauch Chunk and Washington.

From the Cleveland Sunday Morning Times, Sept. 10th, 1876.

TRIAL OF STEAM FIRE ENGINES AT THE CENTENNIAL.

Tuesday, September the 5th, was the day set by the authorities of the United States exhibition, to test the various builds of Steam Fire Engines. The trial lasted four days. The tests were on greatest water pressure, greatest height of streams, on the greatest distance and on

the endurance of each engine. The following are the builds of engines entered for the trial:

Silsby, Gould, Clapp & Jones, Button, La France and the Chatham. On the first day's trial the Button, Gould and Chatham (Canada) engines became disabled and withdrew for repairs. On the second day, all were at work again with the exception of the Button, which was damaged beyond repair; the Silsby was ahead on each test. On the third day, the Gould and the Chatham engines gave entirely out, and with the Button engine had to be withdrawn. The La France and the Clapp & Jones each bursted their air chamber. The La France received a new one and the Clapp & Jones was repaired on the grounds. On the fourth day's trial, there were but three engines left to compete—the Silsby, La France and the Clapp & Jones. In this trial it was only in fact between the Silsby and the Clapp & Jones. This test was on height and water pressure—again the Silsby led largely in each test. The Amoskeag Company had two engines on the ground; they were weighed and entered and received their numbers, but squarely backed down, when the committee told them they were entered for contest, and came for that purpose, and that they had had the rules for the test for over a month, and now on the day of trial to squarely back out. Every builder agreed to wait over the day set for trial, to try and persuade the Amoskeag to come up to her promise, but after the Silsby and Clapp & Jones had shown such powerful throwing it is no wonder they did not come in; in fact, the test of engines was only between the Silsby and Clapp & Jones, as no other could come near their mark, either in height or distance, water pressure or endurance. The Silsby engine has proven herself the best engine now built in the United States.

From the Allentown, Pa., Democrat, Sept., 1876.

At the late trial of steam fire engines on the Centennial grounds, the Silsby steamer was successful in every contest. Many of the steamers broke down, so severe were the tests, but the Silsby bore the brunt gloriously and came off victorious in each and every instance. A large number of steamers of different manufactures were present when the trial commenced, and it is especially gratifying to learn that the Seneca Falls machine, of which we have three in this city, triumphed over all competitors.

From the Carthage Republican, Sept., 1876.

At the Centennial exhibition, recently, a trial of steam fire engines was held, and the Silsby came out ahead. It threw a vertical

stream $1\frac{1}{2}$ inch in diameter, 279 feet—fifty feet farther than any other machine. This places the Silsby at the head of all other steamers manufactured in the world.

From the Philadelphia Inquirer, Friday, September 8th, 1876.

The third day's competitive test of the merits and demerits of the steam fire engines, took place yesterday at the lake, north of machinery hall, Centennial grounds, and despite the drizzling rain falling, was well attended by crowds of lookers on. At 10:30 A. M. fires were lighted under the boilers, and in a few minutes seven of the engines were at work. Yesterday's test was to determine which engine threw the greatest volume of water and to the greatest height. Engine No. 1, which is a Silsby, evidently gained the palm, as at 12:30 P. M., she threw the heaviest stream, 125 feet high, working under a water pressure of 170 pounds to the square inch, and with a steam pressure of 95 pounds.

From the Philadelphia Times, Sept. 7th, 1876.

In the matter of an atmosphere laden with smoke and flying cinders, the southern portion of the Centennial grounds was a veritable Pittsburg yesterday. Six dense, black columns arose from the stacks of six engines, dancing with might and main in mad rivalry. The contest was to determine how far the respective streams could be thrown through three nozzles of different sizes, this being ascertained from pressure guages. The Button engine, which was disabled on Monday, having been ruled out, only eight engines began work yesterday. About noon, half an hour after starting, the Ronald engine became crippled in the suction, and the La France blew her air chamber off. These two being out of the books, the remaining six danced and puffed more madly than before, but continued unfalteringly to the end in the evening. Although the judges have not yet given any information of the test, the general opinion is that the laurels will be carried off by the Silsby engine, of Seneca Falls, N. Y.

COLUMBIA, GA., Nov. 12, 1876.

Silsby Manufacturing Company:

GENTLEMEN:— * * * * * On the night of November 3d, I placed "Old Rock" at a cistern in Georgia, and

laid a line of hose across the river, and put out a fire in Alabama, through 1,500 feet of hose, with 60 pounds of steam, after the Extin-
guisher had failed to subdue it.

Yours truly,

H. R. SEDBERRY,

Engineer "Old Rock."

[*Third size, shipped 1870.*]

From the Daily Gazette, Little Rock, Ark., Dec. 26th, 1876.

SUCCESSFUL WORK OF A SILSBY.

MORE BLAZES.

The business houses of Miller & Penzell and Dudley E. Jones & Co. in ruins—Destruction of the Jewels, Furniture and other property of the Grand Masonic Bodies of Arkansas—Loss fully \$140,000—The Insurance \$70,000—Buildings torn down to check the Conflagration—The Hot Springs Silsby Engine takes an active part.

At 8:30 o'clock last night, while the City Council were in session, trying to devise means to guard against the epidemic of conflagration which is prevailing in this city, the alarm of fire was sounded from the City Hall bell, and the report spread on the street that the hardware establishment of Dudley E. Jones & Co. was on fire. * * * *

The fire broke out in the rear end, and in the office of Jones & Co., and probably had been burning for more than half an hour when discovered. The cause is supposed to be from a defect in the stove used in the office. The steamer "Pat Cleburne" was on the ground almost immediately, and put two streams to playing on the flames. The steamer "Pulaski" was not in working order, but the little Silsby engine, brought for Hot Springs, and which had received a trial on our streets yesterday, was hauled to the corner of Cumberland and Markham streets, and she was put to work, having a stream of great force and in a short time. * * * * * Though the fire was very warm, it was well under control at 12 o'clock, and the balance of the city was announced as safe for at least that night. The thanks of the entire city are due to the gentlemen who have the Silsby engine in charge, (which is intended for Hot Springs,) for their courtesy, and the efficient work of their machine. As soon as the alarm was sounded they put in an appearance. Their engine was placed in position and went to work as though all were at home. The engine is in itself a little beauty, being nickel plated throughout and very strongly built. She was made by the Silsby Manufacturing Company, of Seneca Falls, New York; that establishment turning out more steam fire engines

than any similar establishment in the United States. The engine here throws four streams of water at one time, discharges 500 gallons of water per minute, and gets up steam within four to six minutes, which are great recommendations. She is guaranteed (and she proved it last night) to throw water through a longer line of hose, using a larger nozzle, and with less steam pressure than any engine made. But we will not enlarge upon her good qualities, as she last night proved of what good metal she was composed. We congratulate the citizens of Hot Springs upon having selected such a valuable protector of property as the little Silsby has shown herself to be.

GREENCASTLE, IND., Dec. 26, 1876.

We purchased of the Silsby Manufacturing Company one of their steam fire engines. The same was delivered to our city in good order about three months before our second large fire, which occurred on the 8th of March, 1875, on which occasion it did excellent work, throwing two steady streams of water, through 500 feet of hose each, for four hours, until the supply of water gave out, when we were compelled to move one-fourth of a mile to the next cistern, when one stream of water was driven through 1,500 feet of hose, up a steep grade, for over three hours. Since that time it has rendered good service in a number of fires, being used from one to two hours at each fire. In addition I can safely say that it has been used steady thirty days in filling cisterns, and has made a number of runs at false alarms, at a break-neck speed, over hills and rough roads. We have had our engine about two years, during which time it has not cost us one cent for repairs, and it is in as good condition to-day as when we made the purchase, although it has been used a great many times and no extra care taken of it. We would not exchange it for any other make. We know just what we can depend on; it never fails to work, always makes steam and gives water in quick time, will do effective work and last longer than any other make.

GEORGE E. BLAKE,
Chief Engineer Fire Department.

We endorse the above, and recommend the Silsby to all who desire to purchase the best steam fire engine.

JAMES McD. HAYS,
Chairman Committee on Fire Department.

LUCIUS P. CHAPIN,
Mayor.

ELGIN, ILL., Dec. 26, 1876.

Our third size Silsby engine has been in use nearly eight years, has had some severe tests, has never failed us, and has cost less than ten dollars for repairs. It is very easy on hose, never out of order, and has given us in every way perfect satisfaction.

GEORGE F. LEWIS,
Chief Engineer Elgin Fire Department.

BEAUFORT, S. C., Jan. 16th, 1877.

Silsby Manufacturing Company, Seneca Falls, N. Y. :

GENTS:— * * * * * We have had a good trial and have put your machine to a severe test. The ship "Henry Hills," loaded with cotton, took fire. We placed our engine on a flat boat and took it seven miles down the river. We worked almost constantly for six days and nights. Everybody about here are loud in their praises of your engine; the captain of the ship especially, who says that our machine saved the ship. An Amoskeag engine was sent down from Augusta, which broke down four times, and was compelled to withdraw in less than forty-eight hours. We left the ship after the fire was put out, with our machine in just as good order as when we commenced. For a long time and steady work, give us the Silsby in preference to all others.

Respectfully yours,
JAMES E. MCGREGOR, Engineer No. 2.

PONTIAC, MICH., Jan. 15, 1877.

Silsby Manufacturing Company :

GENTS:— * * * * * Our little "Pontiac" did splendid work. She ran eight hours without stopping and to the satisfaction of everybody.

Yours truly,
J. C. FOSTER,
Chief Engineer.

[*This engine has been in service 12 years.*]

W. U. TEL. CO., }
PHILLIPSBURG, N. J., Jan. 17, 1877. }

Silsby Manufacturing Company :

Belvidere, N. J., has had a large fire to-day. Our engine worked splendid and saved the town.

THOMAS L. TITUS.

KENOSHA, WIS., Feb. 16, 1877.

We would say that the Silsby engine owned by this city has given eminent satisfaction. It has been in use about two years, and during that time has done good and satisfactory work. We have no hesitancy in recommending the engine.

J. V. QUARLES, Mayor.

RACINE, WIS., Feb. 17, 1877.

We have been using the Silsby for about twelve years, and they have given us entire satisfaction. Our expenses for repairs have amounted to but very little. We purchased a new engine last fall, and with it we can throw two streams over two hundred feet, and use six hundred gallons of water per minute. The first engine we purchased, after a use of twelve years, threw a stream 238 feet. We spent considerable time in looking at fire engines before we purchased the last, (which is our third,) and our Committee and Council settled upon the Silsby as the best in all particulars—that is, the most durable, reliable and economical.

I. G. MEACHEM, Mayor.

EAU CLAIRE, WIS., Feb. 19, 1877.

Our city has two Silsby engines and they have given great satisfaction. The first one was purchased six years ago, and has been in service ever since, and although it has seen a great deal of service, repairs thereon have been merely nominal. The other has been in service two years and has given perfect satisfaction. Our city purchased the second one after having a thorough test and trial of the first, and after having spent a good deal of time through a very competent Committee of the Council in examining other fire engines.

C. R. GLEASON,
City Clerk.

OCONTO, WIS., Feb. 21, 1877.

Hon. D. L. Plummer, Wausau, Wis. :

DEAR SIR:—I understand you are about to buy a steam fire engine of the Silsby Manufacturing Company, and the only objection urged against the engine is that the pumps wear out in a year or two.

In justice to the company allow me to say that we have two of the Silsby engines in our city and have had them for nearly five years, and all agree in saying that they are in all respects the most durable engines now in use, at least in the west, and are in every way satisfactory, and so pronounced by the fire department of this city.

Respectfully yours,

O. T. TINDELL, Mayor.

WATERTOWN, Wis., March 16, 1877.

F. H. Foust, Esq. :

DEAR SIR;—Having heard that our Fire Marshal, Mr. Mooth, has telegraphed to your place that the people of Watertown greatly prefer an Ahrens engine to a Silsby, we, the undersigned, think it only justice to all concerned to state that Mr. Mooth speaks only from a national prejudice which has sprung up here. He is a member of the company which runs the Ahrens engine. The Silsby engine has given the best of satisfaction since the day she was first fired up in Watertown. The Ahrens engine was disabled three times during the test between the two engines, and the same results must follow in every instance of the kind, viz: trying to compete with the Silsby on heavy work, a fact known to all in Watertown. For that reason only the Fire Marshal *never has* and *dare not* order the Ahrens engine set on Main street bridge, where she would have to take suction about twenty feet. In case of fire or in practice the Silsby engine takes the bridge and handles the water admirably, often flooding the Ahrens engine while she is taking suction not to exceed five or six feet. The Silsby engine has made a host of friends here; although we have had no bad fires, we have all learned that her power of endurance is great. Under heavy water pressure the Ahrens engine will drive pieces out of her rubber valves the full size of the openings in the valve seats. We send you by mail to-day one of the many pieces driven out at the trial here.

C. W. CHAPPELL,
J. H. SLEEPER,
JESSE STONE,
CHARLES WOOD,
H. B. QUICK,
Committee.

The other two of the Committee are absent from the city. As to the integrity of the persons above named, we refer you to the banks of this city.

JEFFERSON, WIS., Feb. 20, 1877.

This village purchased a third size Silsby steamer in August, 1871. Said engine has been in use since that time, and has not cost one cent for repairs. It has been run at one fire for nine hours, and has never failed to draft water nor in any other particular.

GEORGE J. SMITH,

Foreman Eureka Engine Company No. 1.

LIMA, OHIO, March 23, 1877.

The Silsby engine purchased four years ago has given the most perfect satisfaction. Easy to operate, quick to act, always reliable, or as the boys say, it has never "gone back" on us. It has not cost five dollars for repairs during four years service, which is very remarkable considering that it has been operated often by men having but little knowledge of running engines of any kind.

J. R. HUGHES,

Chief Engineer Lima Fire Department.

TIFFIN, OHIO, March 24, 1877.

We have in our fire department one of Silsby's rotary steam fire engines, which has been in active service for ten years, and in that time we have found her always ready for service. We find her the easiest engine on hose, and will lift water higher than any other engine made. We have had her to four or five tournaments, and competed against all other makes of engines, and always took the prize.

JOS. P. MYERS,

Chief Engineer Tiffin Fire Department.

VICKSBURG, MISS., March 28, 1877.

Messrs. Silsby Manufacturing Co., Seneca Falls, N. Y. :

GENTLEMEN:—You may well feel proud of the workmanship and skill displayed in the construction of the "Queen." She did active service for seven years, and she saw as much or more hours of service than either of the engines that have been in this department; thus

evincing, (at least I think so,) credit not only to yourselves as constructors, but likewise to our engineer, Mr. O'Connor, who has had charge of her since the day we got her.

I am, respectfully yours,

JNO. C. KEARNEY,
Foreman Constitution No. 1.

SING SING, April 18, 1877.

Silsby Manufacturing Company:

Fire broke out in a frame building next to Barlow's row of brick buildings this A. M., at about 3:30. Steamer taken out, worked nobly and steadily for about three and one-half to four hours; no trouble, steady work all the time. Confined the fire to the frame buildings, they even standing. Something unknown here before. Nothing but the steamer could have saved us from a very disastrous fire. She has saved herself a dozen times over. Nothing but praise from the citizens. * * * * *

Hastily,

E. G. ROBERTSON,
Village Clerk.

SUNBURY, PA., April 14, 1877.

Silsby Manufacturing Company, Seneca Falls, N. Y.:

GENTLEMEN:— * * * * * It may not be amiss to state that after seven years service our steamer has given universal satisfaction.

Our machinist here, Mr. McBoulby, finds no trouble in doing all the repairs necessary.

Yours respectfully,

JOHN BOURNE,
Chief Burgess.

Report of Test of Caddo (Silsby) Steam Fire Engine No. 1.

| | |
|------------------------|------|
| Fire started at | 1:46 |
| 20 lbs. steam at | 1:51 |
| 40 " " " | 1:54 |
| 60 " " " | 1:56 |

| STEAM PRESSURE. | MINUTES. | WATER PRESSURE. |
|-----------------|-----------|-----------------|
| 80 lbs. | 11 | 120 lbs. |
| 85 " | 12 | 125 " |
| 90 " | 13 | 135 " |
| 100 " | 14 | 160 " |
| 105 " | 14½ | 170 " |
| 110 " | | 200 " |
| 115 " | | 210 " |
| 120 " | | 220 " |

Through 100 feet of hose, with 1½ inch nozzle, steam pressure 120 pounds, water pressure 220 pounds, the throw was 262 feet.

Through 350 feet of hose, with 1½ inch nozzle, steam pressure 120 pounds, water pressure 215 pounds, the throw was 264 feet.

M. KAUFMAN.
S. BECKWITH.

J. L. TILLY,
ARTHUR S. TOOMBS,

Committee on Throw.

SHREVEPORT, LA., Feb., 1877.

From the Cleveland Times, April 15th, 1877.

ROTARY POWER VS. PISTON POWER.

THE MAYOR, FIRE COMMISSION AND OTHER CITY OFFICIALS PRESENT.

THE ROTARY TRIUMPHANT.

*Forty-five Pounds of Steam made from Cold Water in Six Minutes—
Water Thrown One Hundred Feet in Six Minutes and Seven Seconds,
and Two Hundred Feet Thrown in Eight Minutes and Eighteen
Seconds, through a One and One-Eighth Inch Nozzle.*

SUCCESS OF THE SILSBY STEAMER AT CLEVELAND.—The long looked for trial of the new Silsby steam fire engine, ordered by the Board of Fire Commissioners last December for this city, took place Thursday, in the public square, in presence of the Mayor, the Board of Fire Commissioners, members of the City Council, Police Commission, other city officials, and an assemblage of several thousand citizens as well, who had gathered there for the purpose of witnessing the comparative merits of this engine, with a piston engine bought by the city, since any purchase had been made with the Silsby company.

We also noticed Colonel Hayward, ex-fire commissioner, present, who was one of the commissioners who bought the Amoskeag engine, the first deviation from buying rotary engines for our city. The Colonel took an interested part in the trial, and pronounced himself surprised with the extraordinary workings of the new Silsby. We had been so used to the very successful working of the Silsby engine in our city during the last fifteen years, that the advent of the new one created but little impression; but after examining the machine and watching its workings for a number of hours, we came to the conclusion that our city has at last become secure by a steam fire engine that possesses many points of superiority, not only over those of the same make which have given us such perfect satisfaction for so many years, but over any that have ever been brought to our notice; notwithstanding we have given fire protection special study for a number of years past.

The machine is a third size steamer, and shows the fine workmanship and finish in its construction, which have characterized all the Silsby steamers we have in use. Every part shows thorough workmanship, and all the metal parts are heavily nickel-plated; the Silsby company being the only steam fire engine builders having shops for doing this work on their own premises. The points wherein it differs from the others in service in our fire department, which struck us as most worthy of attention, were principally the boiler; this has been much changed, being built of Otis steel, furnished the Silsby company by the Otis Steel and Iron Co. of our own city.

The circulation of water in the flues in this boiler is also natural and constant, and is not a forced or artificial circulation, as is the case in the boiler of the Ahrens engine, one of which the board has recently been induced to buy as an experiment. Another improvement, and which seems to us an advantage over the engine above referred to, is that it is built "crane neck" style, so that it can be turned in its own length. This seems to us such a matter of importance, where an engine is to be used in a city where there are so many narrow, crooked streets and alleys, that we are surprised that other builders have not been forced to make this style a "*sine qua non*." There are many other improvements in the machine, which we have not space at present to enumerate.

We have been using in the city Silsby steamers for upwards of fifteen years, having at the present time, ten of them in use. The record of our department is an endorsement of the merits of the apparatus employed, and speaks remarkably well for the Silsby steamer. Still, as Cleveland must have the best, we think the Board of Fire Commissioners exercised a wise discretion in examining into the other makes of engines, and the fact that, after giving other makers a fair trial they have again fallen back on their first love, and purchased an-

other Silsby, proves that they not only consider it the best now in use, but that we did right in using Silsby steamers for so many years past. The steamer was brought to the same reservoir from which the Ahrens engine a short time ago took suction, and was at once placed in condition to work. A hundred feet of hose, with pipe, was laid out and a $1\frac{1}{2}$ inch nozzle attached thereto. As soon as the torch was applied, as in the trial of a few weeks ago of the Ahrens engine, repeaters were brought into requisition, and the time of generating steam, from a boiler containing cold water, and throwing a stream, was immediately taken by the interested crowd present.

In three minutes the steam gauge showed seven pounds; in three minutes and ten seconds, ten pounds; in four minutes, twenty pounds; in four minutes and a-half, twenty-four pounds; in five minutes, thirty-two pounds; in six minutes, forty-five pounds; and in exactly six minutes and seven seconds, a stream of water was thrown one hundred feet distant; and in eight minutes and eighteen seconds, two hundred feet was thrown, which was finally increased to two hundred and forty-two feet, the farthest distance ever thrown in this city by a third-class steamer or any other class steamer of the piston make. This, it will be borne in mind, was against a strong wind blowing from the north, which never ceased during the trial.

Two streams were then thrown with seven-eighths inch nozzles, one hundred and sixty-two feet, and would have been increased in distance, beyond a doubt, had not one of the hose pipes burst, which stopped the double stream from being worked any longer. An upright stream was then thrown through an inch and three-sixteenths nozzle, over the top of the flag-staff, which is about one hundred and sixty feet high. This is where the force of the wind was most apparent and effective, yet withal the stream was carried bodily to the top, despite the strong current of air it had to resist. The average amount of steam carried was one hundred and five pounds, and the average water pressure two hundred pounds.

The engine was run by James Teller, Mr. Silsby's delivering engineer, and stoked by Engineer Hughes, of Steamer Three of this city. The Board of Fire Commissioners expressed themselves as highly pleased with the machine, each one in turn, from President Turney to Commissioner Angell, complimenting Mr. Horace Silsby—who was present during the trial—upon the decided success he had made in bringing to Cleveland one of the finest engines in the country. After the trial, the board held a meeting, and cheerfully accepted in a formal manner the engine, and approved Mr. Silsby's bill of \$4,500 as payment for the same.

The engine will go into service in engine house No. 10, with Ira Benton as engineer, and Henry Kurtz as stoker. Cleveland has now

eleven Silsby rotary engines, and two piston engines, one each from the Amoskeag and Ahren's Co.'s. We not only congratulate the Silsby company upon their success in establishing in this city so many of their engines, despite the prejudice they have had at times to contend against, but congratulate our citizens as well upon the assurance we have against the ravages of the fire fiend, while our department is equipped with apparatus of so improved and substantial a make, as the rotary engine made at Seneca Falls, N. Y., by the Silsby Manufacturing Company.

From the Fire Record, July, 1877.


LA PORTE, IND., July 9, 1877.

The Firemen's Tournament, under the auspices of Alert and Wide Awake Hose Companies, July 4th and 5th, was a grand success. * *

The next contest was between the steamers present, for \$75.00. Two were entered: Bryan, Ohio, steamer, (Patterson,) and Warsaw steamer "Kosciusko," (Silsby.) They were to raise steam from cold water, and throw 100 feet through 100 feet of hose. The following is the time:

Bryan, (piston,)5 minutes and 22½ seconds.

Warsaw, (rotary,)5 minutes and 13½ seconds.

 [The Warsaw engine has been in service there since June, 1868. —S. M. Co.]

BATH, N. Y., August 4, 1877.

Silsby Manufacturing Company:

GENTS:—We had a large fire last evening. * * * *
Your little steamer worked to a charm, as she always does in times of need. She is in as good condition as at the date of purchase, five years ago. She has never given out at any point. A new grate this year is all that has been purchased for her; no repairs of any kind whatever.

Yours respectfully,

W. E. HOWELL,
Chief Engineer.

TRIAL AT MONROEVILLE, OHIO.

MONROEVILLE, OHIO, August 7, 1877.

To the Hon. Mayor and Common Council of Monroeville :

We as Committee on Steamer Trial, submit the following report :

Test No. 1—First water through 100 feet of hose.

Silsby, first water, in.....6 min. 10 sec.

Clapp & Jones, water in.....8 min. 45 sec.

Difference in favor of Silsby.....2 min. 35 sec.

Test No. 2—Which throws water 200 feet first.

Silsby, by five (5) minutes.

Test No. 3—Average distance through 100 feet of hose, $1\frac{1}{8}$ inch nozzle; steam limited to 50 pounds.

Silsby, average steam.....51.5 pounds.

Clapp & Jones, average steam.....53.3 pounds.

Silsby, average distance.....220 feet.

Clapp & Jones, average distance200 feet.

Test No. 4— $1\frac{1}{4}$ inch nozzle, 100 feet of hose, throttles wide open.

Silsby, average steam62 pounds.

Clapp & Jones, average steam.....91 pounds.

First ten minutes Clapp & Jones ahead by 20 feet; balance of test Silsby ahead, except perpendicular throw, then Clapp & Jones ahead by 10 feet.

Test No. 5—Two streams, 100 feet of hose each, $\frac{7}{8}$ inch nozzles; steam limited to 50 pounds. Average distance to be the test.

Silsby, average steam51 pounds.

Clapp & Jones, average steam.....52 $\frac{1}{2}$ pounds.

Silsby, average ahead in horizontal.....25 feet.

Silsby, average ahead in perpendicular.....15 feet.

Silsby used $\frac{7}{8}$ inch nozzle and Clapp & Jones one inch nozzle, giving Silsby the advantage.

Test No. 6—Two streams, 100 feet of hose each, one inch nozzles, throttle wide open.

Silsby, average steam.....54 pounds.

Clapp & Jones, average steam73 $\frac{1}{2}$ pounds.

Silsby average ahead 20 feet through this test.

Test No. 7—500 feet of hose, lifting water from bridge; steam limited to 80 pounds.

In this test, both engines lifted and forced water well, but owing to the bursting of the Clapp & Jones hose, can give no figures as to the result.

[This bursting of hose on a long lift by piston engines is of common occurrence.—S. M. Co.]

We noticed that there is less vibration to the Silsby engine while working, than to the Clapp & Jones; also that the Silsby maintains her stream the most uniform, in both horizontal and perpendicular throwing. We think the Silsby had some advantage in hose.

Respectfully submitted,

H. KELLOGG,

A. B. SMITH.

I, John Butler, Clerk of the village of Monroeville, Ohio, hereby certify that the foregoing is a true copy of the Report of the Committee appointed as judges of the trial test of steam fire engines, held in this village on Tuesday, August 7, 1877.

Attest,

JOHN BUTLER, Clerk.

[We desire to call attention in this trial to the low steam pressure used by the Silsby engine in winning the numerous tests, as compared with the steam pressure carried by the Clapp & Jones engine.—S. M. Co.]

COST OF REPAIRS

ON ROTARY AND PISTON ENGINES.

Showing that the Expense of the Rotaries is Only
One-Third that of the Pistons.

From the Chicago Tribune, September 7th, 1872.

NEW STEAM FIRE ENGINES.

THREE ROTARIES PURCHASED

FACTS AND FIGURES SHOWING THAT A JUDICIOUS SELECTION HAS
BEEN MADE.

* * * * * As the three new steam fire engines were to be purchased out of the appropriation for that purpose made by the Common Council, the Mayor, City Comptroller and Board of Police and Fire Commissioners determined to travel somewhat out of the beaten path, and see for themselves the kind of engine to be selected. They made repeated tests, and after canvassing the subject thoroughly, they yesterday determined upon the purchase of three third-class rotary engines of the manufacture of H. C. Silsby, Seneca Falls, N. Y. * * * * *

That the authorities have made a most judicious choice of engines will be seen by the following comparison of the cost of repairs of the rotary steam fire engines, gleaned from the reports of the Fire Commissioners and the Fire Marshal of Chicago. Prior to the fiscal year ending March 31st, 1869, the reports do not give the number of hours each engine worked at fires, therefore no comparison of cost can be made prior to that time.

FIRST YEAR.

Names of steamers, hours worked, and cost of repairs for the year ending March 31, 1869:

| ROTARIES. | HOURS WORKED. | COST OF REP'S. |
|---------------------|---------------|----------------|
| Long John, | 90.20 | \$396 52 |
| Waubansia, | 9.05 | 49 13 |
| U. P. Harris, | 36 40 | 474 46 |
| Chicago, | 84.55 | 221 89 |
| Total..... | 221. | \$1142 00 |

Average cost of repairs of rotaries per hour of work, \$5.16.

| PISTONS. | HOURS WORKED. | COST OF REP'S. |
|------------------------|---------------|----------------|
| Enterprise, | 23.40 | \$98 55 |
| William James, | 80.40 | 548 64 |
| Jacob Rehm, | 50.20 | 703 21 |
| Little Giant, | 38.30 | 2260 11 |
| Liberty, | 60.30 | 527 14 |
| Economy, | 74.05 | 977 51 |
| Frank Sherman, | 25.15 | 2785 15 |
| J. B. Rice, | 47.35 | 2488 45 |
| A. C. Coventry, | 69.05 | 1606 17 |
| T. B. Brown, | 101.00 | 699 05 |
| A. D. Titsworth, | 79.45 | 1485 55 |
| Fred. Gund, | 72.50 | 523 13 |
| Total..... | 723. | \$14,702 66 |

Average cost of repairs of pistons per hour worked, \$20.33.

SECOND YEAR.

Names of steamers, number of hours worked, and cost of repairs, for the year ending March 31, 1870:

| ROTARIES. | HOURS WORKED. | COST OF REP'S. |
|------------------|---------------|----------------|
| Long John, | 131.15 | \$362 06 |
| Waubansia, | 46.25 | 33 71 |
| Chicago, | 140.45 | 417 26 |
| Illinois, | 6.05 | 116 20 |
| Winnebago, | 1.30 | 59 97 |
| Total..... | 326. | \$989 20 |

Average cost of repairs on rotaries per hour worked, \$3.04.

| PISTONS. | HOURS WORKED. | COST OF REP'S. |
|------------------------|---------------|----------------|
| William James, | 106.40 | \$1095 67 |
| Jacob Rehm, | 85.55 | 768 46 |
| Little Giant, | 92.55 | 785 84 |
| Liberty, | 77.00 | 541 99 |
| Economy, | 69.15 | 1294 50 |
| Frank Sherman, | 39.10 | 580 97 |
| J. B. Rice, | 97.05 | 1252 78 |
| A. C. Coventry, | 110.05 | 1972 55 |
| T. B. Brown, | 107.15 | 1699 86 |
| A. D. Titsworth, | 83.25 | 452 30 |
| Fred. Gund, | 90.40 | 2208 57 |
| R. A. Williams, | 10.40 | 73 40 |
| Total..... | 970. | \$12,726 89 |

Average cost of repairs on pistons per hour worked, \$13.12.

THIRD YEAR.

Names of steamers, number of hours worked, and cost of repairs for year ending March 31, 1871:

| ROTARIES. | HOURS WORKED. | COST OF REP'S. |
|------------------|---------------|----------------|
| Long John, | 134.30 | \$702 85 |
| Waubansia, | 95.15 | 353 34 |
| Chicago, | 102.00 | 826 36 |
| Illinois, | 50.25 | 92 41 |
| Winnebago, | 50.50 | 34 34 |
| Total..... | 433. | \$2,009 30 |

Average cost for repairs on rotaries per hour worked, \$4.64.

| PISTONS. | HOURS WORKED. | COST OF REP'S. |
|------------------------|---------------|----------------|
| William James, | 100.20 | \$496 69 |
| Jacob Rehm, | 73.45 | 946 43 |
| Little Giant, | 97.15 | 696 84 |
| Liberty, | 67.15 | 742 85 |
| Economy, | 99.15 | 217 84 |
| Frank Sherman, | 50.25 | 953 68 |
| J. B. Rice, | 123.30 | 982 97 |
| A. C. Coventry, | 129.00 | 548 51 |
| T. B. Brown, | 57.00 | 407 76 |
| A. D. Titsworth, | 98.00 | 1078 98 |
| Fred. Gund, | 95.00 | 439 63 |
| R. A. Williams, | 107.00 | 769 59 |
| Total..... | 1098. | \$8,281 77 |

Average cost of repairs of pistons per hour worked, \$7.54.

RECAPITULATION.

For the year ending March 31, 1869, the rotary engines worked 221 hours, at a cost of \$1,142.00; year ending March 31, 1870, worked 326 hours, at a cost of \$989.20; year ending March 31, 1871, worked 433 hours, at a cost of \$2,009.30.

Total hours worked, 980.

Total cost, \$4,140.50.

Average cost of repairs on rotaries per hour worked, for three years, \$4.25.

For the year ending March 31, 1869, the piston engines worked 723 hours, at a cost of \$14,702.66; year ending March 31, 1870, worked 970 hours, at a cost of \$12,726.89; year ending March 31, 1871, worked 1,098 hours, at a cost of \$8,281.77.

Total hours worked, 2,791.

Total cost, \$35,711.32.

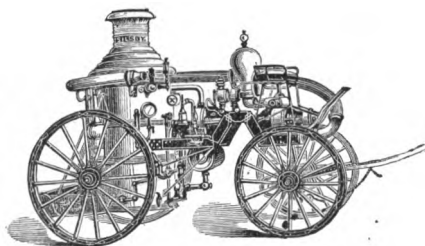
Average cost of repairs on pistons per hour worked, for three years, \$12.80.

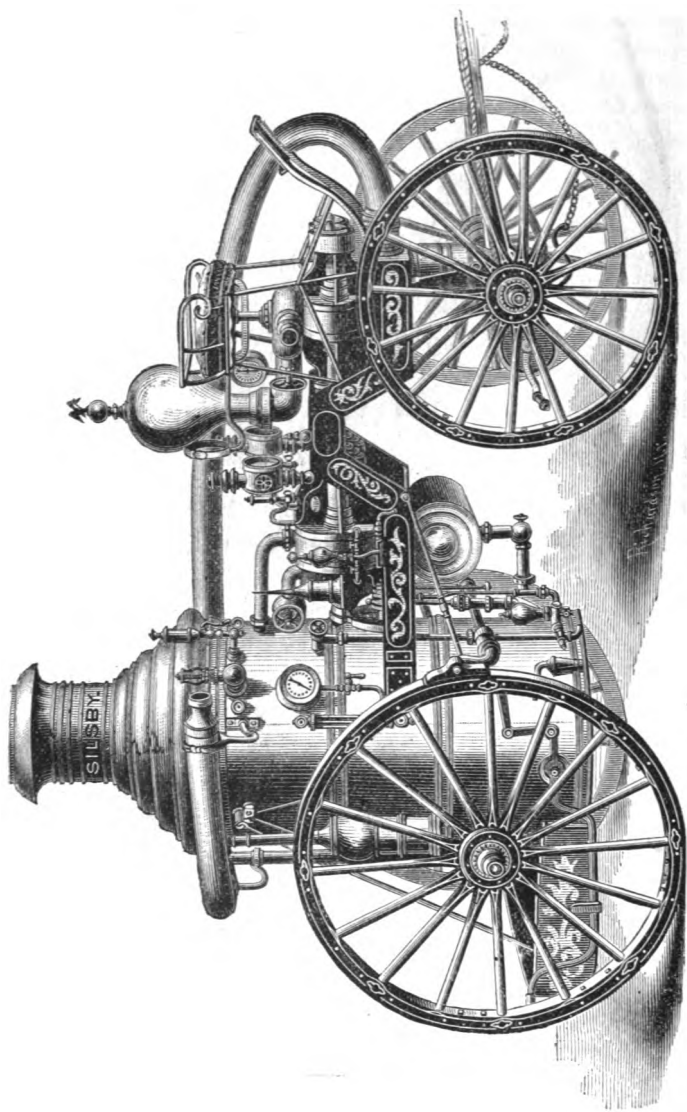
Difference in favor of the rotary engines and against the piston engines, for repairs for each and every hour worked, \$8.57.

The average number of hours worked by all the steamers per year, for three years, was about 74.

Average cost of repairs on rotaries per year of 74 hours work, \$313.02; on pistons, \$967.20.

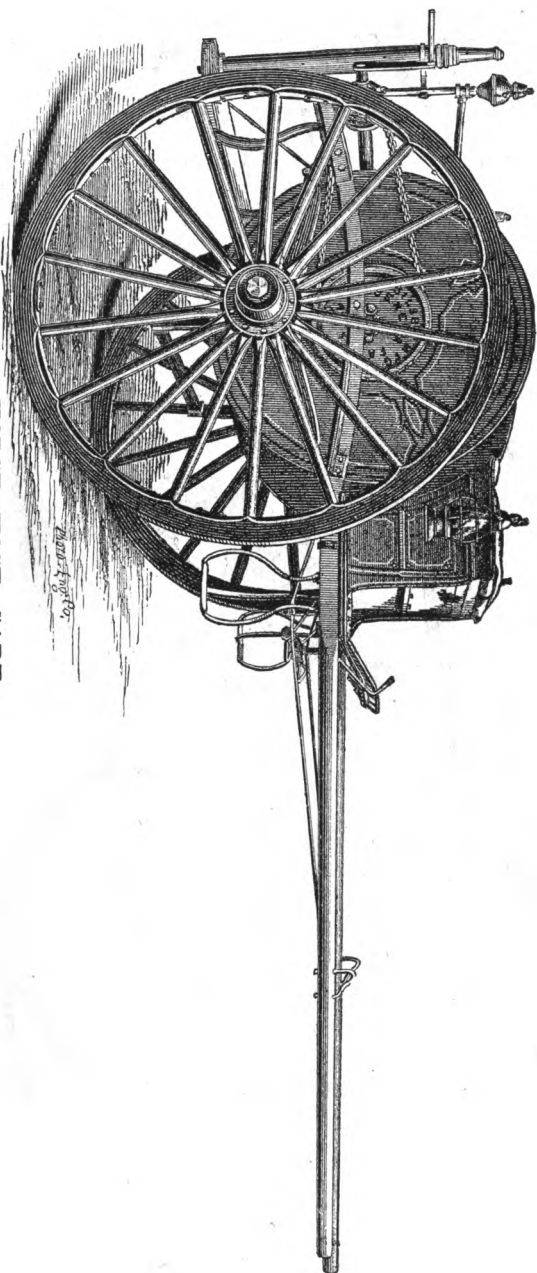
Difference in favor of the rotaries per year each, \$654.18.

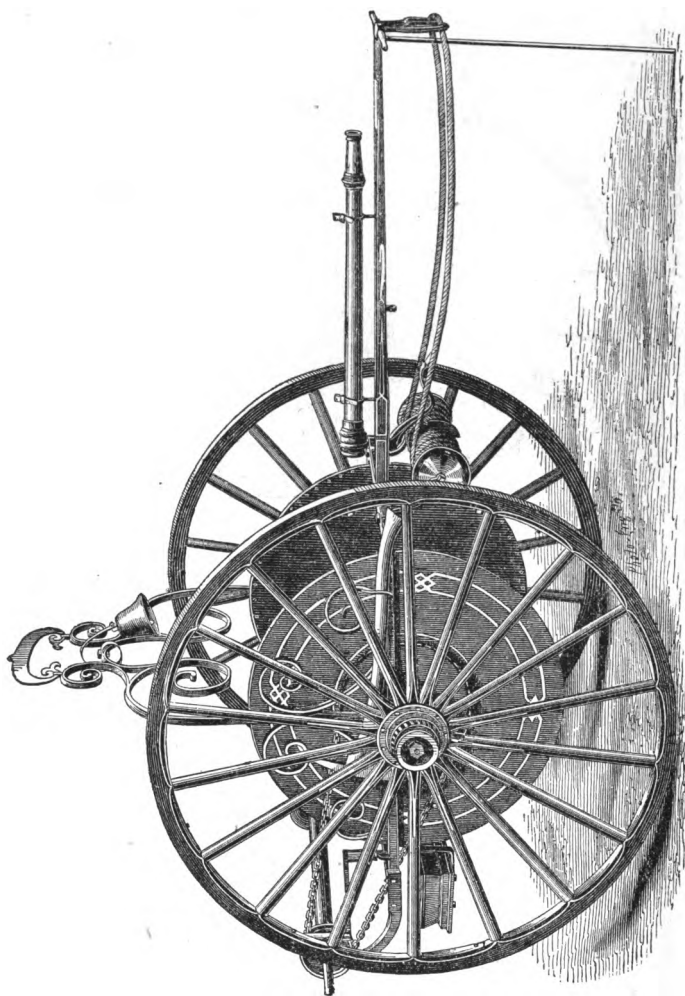




THIRD SIZE.---CRANE NECK.

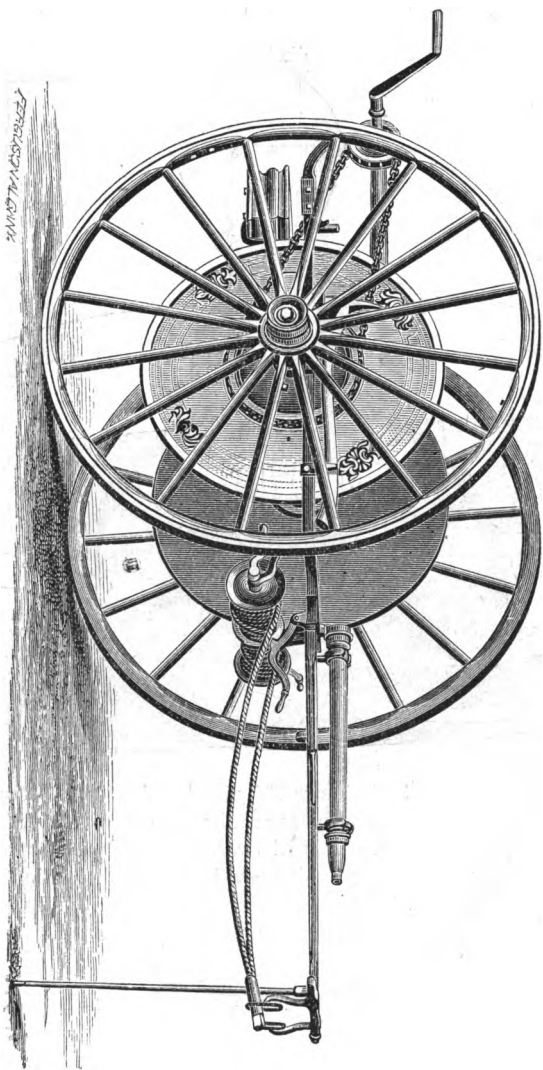
HORSE HOSE CART.



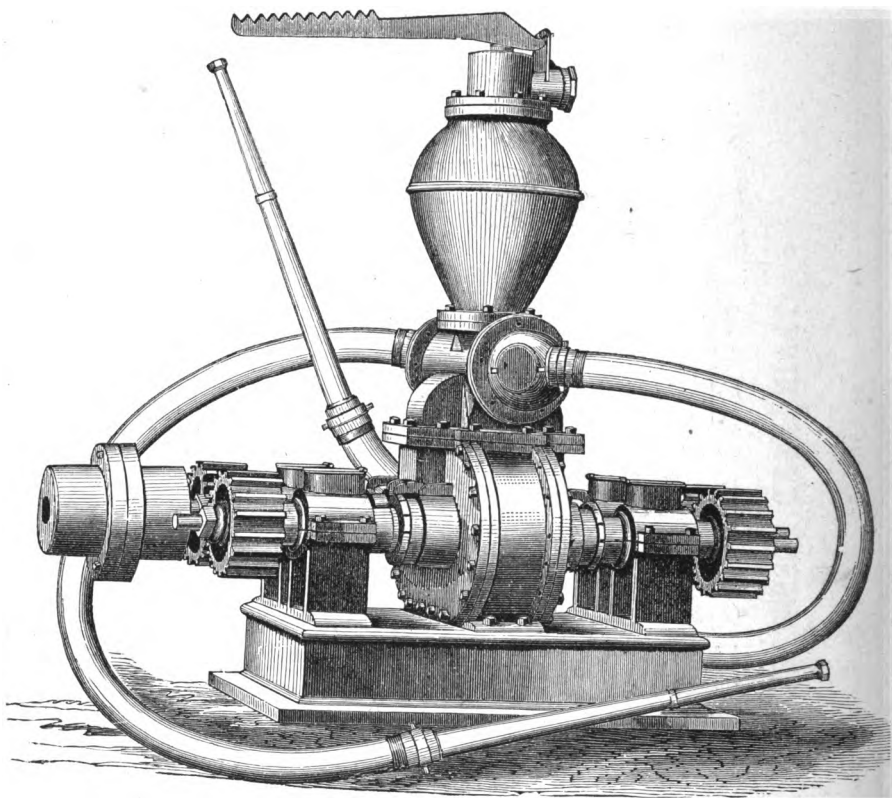


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This Fire Pump will discharge 750 gallons of water per minute, and will force it in 4 or less streams as required, to a distance of over 175 feet from $1\frac{1}{4}$ inch nozzles. It will draft water 25 feet perpendicular suction. If preferred an iron pipe can be attached, leading from the Pump up through the different stories of a building, with cut offs and hose in each story, so that every part can be simultaneously flooded.

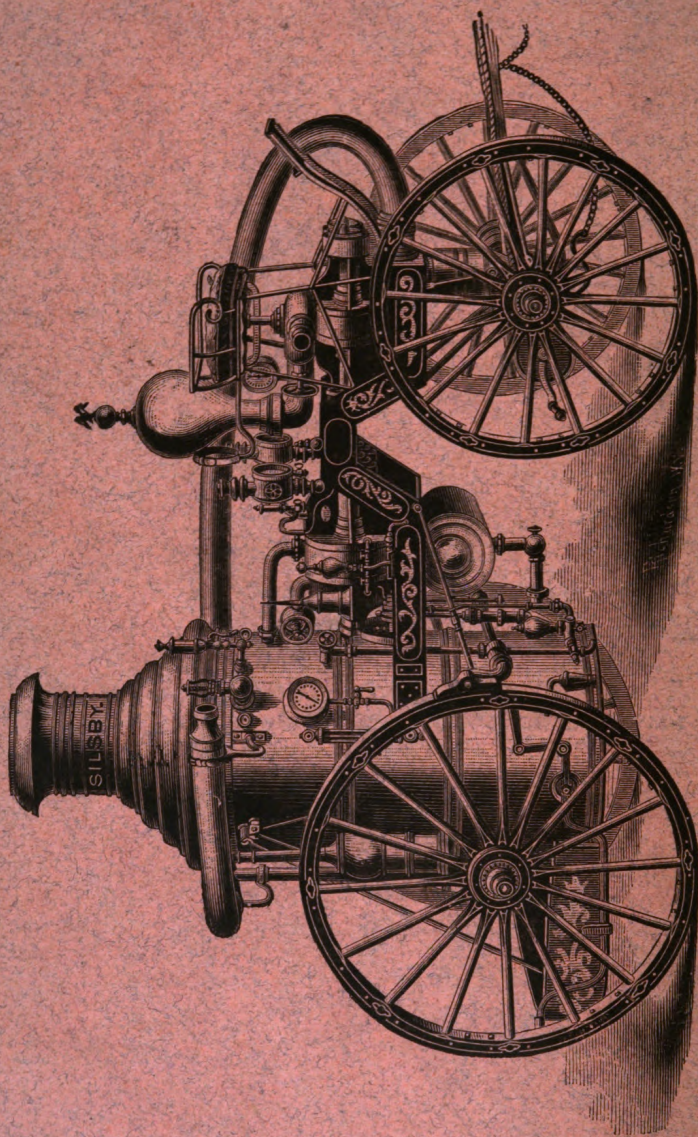
We also build Fire Pumps both larger and smaller than the above. These Pumps are the best fire protectors that can possibly be used in mills, factories, distilleries, &c., &c.

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